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Environmental Issues

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Environmental Issues

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ROK, Russia Convene First Environmental Cooperation Meeting

*SK2501015395 Seoul THE KOREA HERALD
in English 25 Jan 95 p 3*

[FBIS Transcribed Text] The first South Korea-Russia joint Environmental Cooperation Committee convened in Moscow yesterday for a two-day run for talks on bilateral cooperation on environment, according to the Environment Ministry.

The Moscow meeting is the outcome of the environmental cooperation agreement the two countries signed last June, a ministry spokesman said.

At the meeting, officials from Seoul and Moscow discussed important issues including exchanges of information on environmental policy and joint research.

Seoul earlier suggested to Moscow seven cooperation tasks including joint research into environmental management formulas using a geographical information system. Also proposed were tasks concerning protection of migratory birds and research on their status, exchanges of air pollution and environmental data, research into polar plants in Siberia and the Korean Peninsula, plus studies of the effects of global warming on them.

Research on the distribution of water resources for agricultural use and a comparative study on formulas for improved farmlands are also included in the proposed projects.

Russia for its part has notified South Korea of 10 areas open for cooperation in joint ecological studies and research in radioactivity.

South Korea is represented by a nine-member delegation at the meeting headed by Choe Yong-chin, director-general of the Foreign Ministry's International Economy Bureau, while Vice Environment Protection Minister Mikhail Tolkachev leads the Russian delegation.

The South Korean delegation comprises officials from the Environment and Foreign Ministries, forestry office, the National Institute of Environmental Research and the Forestry Research Institute.

Environment Minister Kim Chung-wi has suggested establishment of a joint environmental cooperative body involving South Korea, China and Japan for cooperation in such issues as pollution of the West Sea and acid rain.

French-Russian Dispute Over Toxic Waste Noted

*BR3001140095 Paris LIBERATION in French
30 Jan 95 p 11*

[Report signed "H.D.-P." and "H.C.": "French-Russian Conflict Over 10 Tonnes of Toxic Waste"]

[FBIS Translated Text] Russia is asking France to take back around 1,000 tonnes of toxic waste which has been passed back and forth between the Urals and St. Petersburg for a year now. Russian Environment Minister Victor Danilov-Danilyan has taken up these demands made Friday [27 January] by Greenpeace, the ecologist association, during a demonstration outside the French consulate in St. Petersburg. For the minister, who thinks that this waste arrived in Russia "amid deception" and "in violation" of all international rules, "the only civilized solution to this situation is to place the toxic waste on a ship and return it to the sender."

The French Environment Ministry disputes this version. According to Michel Barnier's office, the transaction between a Belgian enterprise, installed in France, and a Russian company specializing in the recovery of "secondary metals" contained in mining waste was carried out in a proper manner through a broker. "If there was any deception about the content of the load," the French minister's office said, "the waste should indeed be returned to France, but this is a matter of civil law under the responsibility of the broker."

This waste, according to Greenpeace, contains between 8 and 10 percent of cadmium, 2 to 3 percent of thallium, and selenium, germanium, and arsenic.

SOUTH AFRICA

Future of Cape Environmental Board Reported Undecided

*MB2101142495 Johannesburg SAPA in English
2104 GMT 20 Jan 95*

[report by Charl de Villiers]

[FBIS Transcribed Text] Cape Town Jan 20 SAPA—Table Mountain may end up as just another pile of rocks if its conservation suffers as result of wrangling over a new management policy for the Cape Peninsula Protected Natural Environment [CPPNE], veteran naturalist dr Douglas Hey said this week.

Dr Hey, chairman of the CPPNE's Management Advisory Committee, said his committee had worked too hard in the past nine years to throw in the towel. The committee, representing a host of interest groups in the Peninsula mountain chain since 1986, was not reconstituted by Western Cape Premier Mr Hergus Kriel after its statutory term expired in December.

Provincial Nature Conservation Department Director Mr Niel van Wyk confirmed on Friday: "The premier has made no commitment on the advisory committee's term of office." However, the department had suggested to Dr Hey that his committee continue to function until there was more clarity on management of the CPPNE.

The CPPNE is owned or managed by several local authorities, a number of government departments and more than 160 individuals. Fragmented ownership and control have been identified as the greatest obstacles to a comprehensive and effective conservation system for the 29000 ha area, earmarked for World Heritage Site status.

Mr van Wyk said two studies on management of the area, by the University of Cape Town's [UCT] Environmental Evaluation Unit and Western Cape Attorney-General Frank Kahn, had been discussed by the advisory committee in November. The department had gathered comments and other contributions from most interest groups and would prepare recommendations for the province's executive council. This would take some time because interest groups were numerous and the matter was complex. He confirmed that views dissenting from the advisory committee's report on the UCT study had been received by the committee's secretariat.

The UCT report, commissioned by a former cape administrator, proposes the CPPNE be taken over by the National Parks Board until a new authority with executive powers is set up under national legislation. Mr Kahn's commission recommended the area be run by the Transitional Metropolitan Council.

Mr van Wyk said he believed the public should be involved in the nomination of a new management body. Imminent changes in the structure of local authorities in the Cape metropolitan area meant the advisory committee's membership would have to be revised. "We are aware that certain groups do not regard the committee as being

representative." Mr van Wyk said his department, "while trying not to delay the process, must be satisfied there is wide support for the acceptance of final management recommendations".

Dr Hey, who headed the Cape Department of Nature Conservation from its inception in 1952 to 1979 and the advisory committee since 1986 as the official advisory body for the cape administrator, said the committee would continue its work until Mr Kriel implemented a new dispensation. The committee hoped to meet Mr Kriel to discuss its future, he said.

"All I can do is work within the constraints of my position as chairman. I'm quite happy to stand down under a new dispensation and am still willing to give service.

"Whatever dispensation follows there must be an ecological advisory committee representing scientific, community and private-sector interests.

"My major concern is conservation of the mountain. All natural areas are under threat and we can push ecotourism beyond nature's capacity to support it.

"The mountain will always be there but may just be a pile of rock. The major threat is to flora, and without flora we won't have fauna." Too many veld fires, invader vegetation and trampling by human beings held the greatest threats to the survival of Cape Town's world-famous landmark, he said.

Disputes Reportedly Threaten Protection for Cape Peninsula

*MB2601063295 Johannesburg SAPA in English
2300 GMT 25 Jan 95*

[Report by Charl de Villiers]

[FBIS Transcribed Text] Cape Town Jan 24 SAPA—Hopes that the Cape Peninsula will be catapulted to World Heritage Site status on a par with the Pyramids and Grand Canyon may founder on wrangling over its future environmental management, top conservationists said on Wednesday.

National Parks Board Operations' Director Mr Dick Parris and SA [South Africa] Nature Foundation Conservation Director Dr Ian MacDonald were reacting to Cape Nature Conservation's [CNC] announcement that World Heritage Site status would be sought for the peninsula. CNC said the CSIR's [Council for Scientific and Industrial Research] Division of Forest Science and Technology, Forestek, had been asked to draw up a World Heritage Site application to the United Nations' World Heritage Council by October 1. The application, if successful, would confirm one of South Africa's main tourist attractions as having the "highest universal value", exceptional natural beauty and being an outstanding example of evolutionary history, CNC said in a statement.

The SA Nature Foundation, which with the Institute of Plant Preservation co-sponsored the Forestek application

on behalf of the 29000ha Cape Peninsula Protected Natural Environment [CPPNE], was delighted with the development, Dr MacDonald said. "It will give the CPPNE immense international stature to be listed with cultural and scientific sites like the Pyramids, great Zimbabwe ruins, the Grand Canyon and Galapagos Islands. "There are people who travel the world to notch up World Heritage Sites like some list birds." He was dismayed, however, with the slow progress in implementing vital recommendations on a unified, executive conservation management authority for the fragmented CPPNE. "The last thing we need is control of the CPPNE falling into a vacuum. UNESCO (to whom the application will be addressed) will certainly look at the area's management structure."

He said Dr Jim Thorsell, the World Conservation Union's adviser on the World Heritage Council, had described the peninsula as having important bio-diversity attributes. "But he was a bit worried about its management and ownership."

The application had come as "absolutely fantastic news", Mr Parris said, but "I'd be surprised if they'd accept the application if they don't know who is going to manage the mountain or pay for it". Proclaiming the CPPNE a national park would certainly smooth its path to becoming a World Heritage Site and open new prospects for international conservation funding. "The issue of CPPNE's conservation status might even be critical."

Forestek ecologist Dr Brian van Wilken said it would obviously be better to have one body controlling the CPPNE, currently split between 12 municipalities, several state departments and 160 private landowners.

Besides its cultural and historical attributes, the Cape Peninsula was home to about 1,200 plant species, of which 11 were endemic. The Kruger National Park, Great St Lucia Wetlands Park, Natal Drakensberg and Richtersveld in the North-Western Cape have also been identified as potential World Heritage Sites.

Official: Environmental Studies Needed for Water Projects

MB3101062895 Johannesburg SAPA in English
2117 GMT 30 Jan 95

[FBIS Transcribed Text] Cape Town Jan 30 SAPA—No major water developments would take place anywhere in South Africa without a thorough environmental impact study and effective public involvement, Water Affairs and Forestry Minister Prof Kader Asmal said on Monday [30 January].

Speaking at a public meeting in Cape Town on the Palmiet water scheme, he said: "This announcement I want to be viewed as a major and serious commitment. I invite the public to hold me to my word." Active and generous steps were needed to help all people present their case—including, if needed, providing transport to and from meetings.

"There is no point in assuming the public have been consulted when a large percentage of people are not capable, for financial or other reasons, of presenting their case.

"There will be meaningful consultation, there will be proper explanation and analysis, so that the people who voted this government into power are able to exercise their prerogative of choice." Palmiet I, aimed at augmenting Cape Town water supplies, was a limited project entailing piping water from one dam to another in mountains above the eastern shore of False Bay. "This is not a scheme to build a new dam in one of the most pristine floral kingdoms of the world. It is a scheme ... to help Cape Town to stave off a situation of water stress in the very new future."

Lower-income demand for water in the Western Cape would rise from 11 percent at present to 23 percent by the year 2000. Prof Asmal said legitimate environmental concerns had to be weighed against urgent social needs. "We must seek holistic answers which are best for the people and the earth we live in."

Bill To Ban Mining in Wetlands Criticized

MB0102150395 Johannesburg BUSINESS DAY
in English 1 Feb 95 pp 1, 2

[Report by Tim Cohen and Michael Moon]

[FBIS Transcribed Text] Cape Town—The Wetlands Conservation Bill which aims to outlaw mining in 225,000ha of SA's [South Africa] wetlands, including the St Lucia area, has been tabled in Parliament.

The legislation, immediately criticised yesterday by both pro- and anti-mining lobbies in the St Lucia dispute, was introduced as a private member's Bill—which means it does not necessarily have the support of any political party. Some ANC MPs said it would probably be backed by a majority in their party.

The Bill seeks to have the international Ramsar convention on wetlands written into SA law. Introduced by ANC Senator Stefanus Grove, it was initially formulated by former ANC MP Rob Haswell whose attempts to pilot it through the old Parliament were blocked for three years.

The Bill was passed by the ANC-dominated parliamentary select committee on private members' proposals and will be referred to the Office of the State President because of its implications for state land. The Environmental Affairs select committee will then discuss it and hear public submissions.

The Ramsar convention has designated 12 SA wetlands as internationally important sites, and the Bill seeks to have these and other areas protected from damaging activities such as mining.

Richards Bay Minerals (RBM) said the Bill was an attempt to block the company's planned titanium dredge mining operations on the eastern shores of Lake St Lucia. If the Bill was enacted and mining at St Lucia prohibited, jobs

would be lost and the company would lose five years of economic life, "with concomitant ripple effects in the region's socioeconomics".

"RBM fully supports the conservation of wetlands, but believes that as the Environment Affairs Department is drafting new legislation which will probably give holistic support to this principle, the private members' Bill is superfluous."

The Bill contradicted constitutional principles which called for multiple land use, said RBM.

A spokesman for the Natal Parks Board, which has strongly opposed the mining plans, said the Bill was flawed

in that it was too obviously focused on the St Lucia issue and wider protective measures were needed to cover all the country's wetlands.

Board planning head Trevor Sandwith said integrated environmental management legislation being drafted under the existing Environmental Conservation Act could achieve this.

A final decision on whether to allow dune mining in St Lucia rests with Mineral and Energy Affairs Minister Pik Botha, who has said land claims in the area have to be dealt with first. A commission to look into land claims was appointed last month.

Minister Signs Nuclear Safety Regulations
HK2401111095 Hong Kong ZHONGGUO TONGXUN SHE in Chinese 0723 GMT 28 Dec 94

[FBIS Translated Text] Beijing, 28 Dec (ZHONGGUO TONGXUN SHE)—Chen Minzhang, minister of public health, recently signed an instruction of the Ministry of Public Health on the promulgation of the "Regulations on Emergency Medical Management of Nuclear Accidents" and the "Regulations on Radiation Health Protection and Management of Nuclear Facilities."

The "Regulations on Emergency Medical Management of Nuclear Accidents" make clear that emergency medical management of nuclear accidents should follow the principle of putting prevention first, and should implement the policy of being always on the alert, active compatibility, full cooperation, protection of the public, and protection of the environment. Its major task is to implement state principles and policies for emergency work for nuclear accidents; to make full use of existing technical forces and equipment of radiation health protection organizations, and public health and medical organizations; to make good preparations for emergency medical measures when no accident has occurred; and to organize and provide emergency medical service if an accident occurs. The "Regulations" also put forward strict demands on emergency medical organizations at various levels and on their respective duties, training, and exercises.

The "Regulations on Radiation Health Protection and Management of Nuclear Facilities" reaffirm that the state institutes a health supervision system for radiation health protection of nuclear facilities. The selection of sites, and the construction, operation, and ceasing service of nuclear facilities should have a radiation protection assessment report made in accordance with the regulations, and should follow the preventive examination and approval system.

Officials on Attractions of Kunming for Black-Headed Gulls

OW2401091495 Beijing XINHUA in English 0824 GMT 24 Jan 95

[FBIS Transcribed Text] Kunming, January 24 (XINHUA)—This capital of southwest China's Yunnan Province, dubbed the "city of eternal spring", has become a paradise for migrating black-headed gulls (*larus ridibundus*) in Winter.

According to local officials in charge of environmental protection, black-headed gulls have migrated in large numbers to Kunming to spend the last 10 Winters.

Every day many people make special trips to feed the birds.

This year some 13,000 red-beaked gulls are spending the Winter in the city, which has an area of only 53 sq km and a population of more than 700,000, said the officials.

The birds settle in the thick grass along the famous Dianchi Lake in suburban Kunming at night and fly to the downtown area of the city to look for food.

Local ornithologists say that the red-beaked gulls in Kunming come from Siberia judging from the tags attached to their legs.

Prof. Wang Zijiang of the Biology Section of Yunnan University, attributed the gathering of the gulls to the city to the mild climate and rich water resources, as well as local residents' consciousness of the importance in protecting such migratory birds.

For instance, relevant governmental departments in the city each day supply 300 kg of food for the birds, while local residents provide them with about 700 kg of food daily.

In the meantime, the city government has issued orders to local residents to protect black-headed gulls and has forbidden the setting off of fireworks in downtown areas of the city in case they scare away the birds.

Beijing Launches Monthly 'Clean City Day'

OW2401164595 Beijing XINHUA in English 1401 GMT 24 Jan 95

[FBIS Transcribed Text] Beijing, January 24 (XINHUA)—Early this morning crowds of people gathered before the gates of factories, businesses, institutions, schools, and research institutes in the capital city, most of them with brooms and dustpans in their hands.

Those residents who took to the streets today are estimated in the millions, as part of the first "Clean City Day" for Beijing.

"To have a clean environment, every unit must, first of all, keep the area of their contracted responsibility clean," Zhang Jianmin, chairman of the Beijing Municipal People's Congress, said. "And everybody must take part in the labor in the public interest to carry a clean and beautiful Beijing into the next century."

Changan Avenue, which runs through the center of Beijing, was plastered with campaign slogans. Armed police, soldiers, cadres, and students could be seen cleaning concrete barriers in the medial strips, weeding under trees, and picking up litter from lawns.

According to officials, the city's environment administration committee has decided to launch a "Clean City Day" every month starting this year in an effort to arouse environmental awareness among a greater number of citizens.

Chang Jiang Shelterbelt Project Alleviates Soil Erosion

OW2601111895 Beijing XINHUA in English 0831 GMT 26 Jan 95

[FBIS Transcribed Text] Kunming, January 26 (XINHUA)—The shelterbelt being built along the upper and middle reaches of the 6,300-km Chang Jiang River, is playing an increasingly important role in environmental improvement.

Trees have been planted on a total of 5.47 million ha [hectare] of bare mountainous areas in 200 counties along

this, the biggest river in China since 1989, according to a conference held in this capital of southwest China's Yunnan Province by the Ministry of Forestry.

Some 29 percent of the land along the upper and middle reaches of the river have so far been greened, up nine percent over the 1989 figure.

The Chang Jiang River runs 5,000 km from its upper to its middle reaches. An estimated 530 million tons of soil were eroded into the river annually before the construction of the shelterbelt, which extends through 200 counties in 11 provinces along the river.

The severity of the soil erosion has been clearly alleviated. In Yichang Prefecture alone, the soil erosion has been reduced by 28 percent because of the shelterbelt.

The shelterbelt project started in 1989, and at least 80 percent of the work of greening 667 ha of mountain areas has so far been completed in the first phase of construction.

Southwest China's Sichuan Province, through which the Chang Jiang River and many of its tributaries flow, has input more than 200 million yuan and over 250 million labor days in greening 1.64 million ha of mountainous areas.

In central China's Hubei Province, 650,000 ha of desolate mountains and hills have been covered with trees since the shelterbelt project started. So far, 42.2 percent of its land has now been greened, an increase of 5.6 percent over the 1989 figure.

To achieve better economic returns, local people also plant economic trees during the shelterbelt construction. A total of one million ha of such trees have been planted in the provinces through which the Chang Jiang flows, and a great number of farm households have shaken off poverty as a result.

According to the ministry, China will start the second phase of the shelterbelt construction soon after the first phase is finished by the year 2000.

Shanghai Improves Environment in Urban, Rural Areas

HK3001140195 Beijing ZHONGGUO XINWEN SHE in English 0514 GMT 30 Jan 95

[FBIS Transcribed Text] Shanghai, January 30 (CNS)—While maintaining a sustained economic growth, the discharge volume of pollutants registered a reduction in

Shanghai last year, leading to an improvement of environment in both rural and urban areas in the city.

In early last year, Shanghai had set 1994 as "the Year of Environmental Protection", mobilizing its residents to actively join the campaign on environmental protection, and mapping out specific tasks for authorities at various levels and projects for environmental protection in areas under their jurisdiction. By the end of last year, some 600 projects of this kind had been basically completed, promoting the harmonious development of environment protection and economy.

Last year environment protection departments of Shanghai intensified their supervision over environment protection and strictly controlled pollutant discharge. The City carried out a permit system for discharging pollutants, issuing various kinds of such permits to more than 900 enterprises. They also strengthened their inspection to operational condition of pollution control equipment and condition of pollution sources.

Shanghai has arranged a batch of renovation items in its old urban districts and construction items for its infrastructure in recent years, producing better conditions for improvement of environment here. 78 percent of residents here have used qualified gas. Ten factories and workshops discharging quite a lot pollutants have been removed from its urban districts, leading to a 15 percent or above drop in density of sulfur dioxide here. The first-phase work of the sewage processing project in the city has reduced 1.2 million tonne waste water directly draining into the Suzhou River everyday, improving water quality of the Suzhou River to some extent. Items for environmental improvement in the Yangpu Port and the Zhenru Port will also be constructed. With an approval of the municipal government, environmental protection departments of the city, according to law, closed down the Jiading Huilong Chemical Industrial Factory which registered malpractice of illegally discharging waste water and seriously polluting water sources. Some other 100 units found of seriously breaching the Law on Environmental Protection had been also punished.

The Regulations on Environmental Protection in Shanghai has been approved by the municipal People's Congress and will be 23 carried out starting from May 1 this year.

REGIONAL AFFAIRS

ROK Envoy Notifies UN of 11 'Feasible' Projects With DPRK

SK0202050995 Seoul CHUNGANG ILBO in Korean
2 Feb 95 p 1

[YONHAP report from the United Nations]

[FBIS Translated Text] On 1 February, ROK Ambassador to the United Nations Pak Su-kil notified the United Nations of 11 projects between South and North Korea which our government has determined as being immediately feasible, including the relinking of railway lines between South and North Korea and research on ecological conditions in the DMZ area.

Ambassador Pak relayed this to United Nations Secretary General Boutros-Boutros Ghali when he met with the secretary general to present his credentials. During this meeting, Ambassador Pak revealed the 11 projects which the ROK Government had selected from the list of 20 projects which the UNDP [United Nations Development Plan] had recommended in May 1994 to both South and North Korea as having potential.

CAMBODIA

Minister Denies Accusing Thailand of Destroying Environment

BK2401031695 Phnom Penh National Radio of Cambodia Network in Cambodian 1300 GMT 23 Jan 95

[Report on press communique of the Environment Ministry]

[FBIS Translated Text] Last weekend, His Excellency [H.E.] Li Thuch, under state secretary for Environment, promptly replied to the Bangkok's news brief on Thai Foreign Minister Thaksin Chinnawat's criticism.

In his letter to Sakthip Krairoek, Thai ambassador to Cambodia, H.E. Lithuch stressed that he did not accuse the Thai authorities of destroying Cambodia's environment in his 11 January statement at the Foreign Correspondents' Club in Phnom Penh.

Li Thuch wrote: I have personally spoken to the environmentalists and politicians many times concerning the Khmer Rouge activities that are causing serious destruction to the nation's natural habitat, in disregard of the future of Cambodia's environment or economy.

H.E. Li Thuch emphasized in his letter that he stressed this point in Bangkok last month when he addressed the conference on international environment organized by the Thai environment institute. He wrote: I am very glad to be supported and encouraged by many famous environmentalists, including Dr. Nirat Phanthumranarit, head of the Thai environment institute.

H.E. Li Thuch added: There is no doubt that not only the Royal Government of Cambodia has paid attention to the

environmental problems in our country, it has also taken measures to consolidate and enhance the level of intellectual understanding in this regard.

H.E. Li Thuch ended his letter to Ambassador Sakthip Krairoek saying that the Environment Ministry has sought measures to hold a close and meaningful discussion with neighboring countries on the important issue of environment facing this region.

[dated] 23 January 1995

Thai Firms Said Involved in Khmer Rouge Gem Exploitation

BK3101100095 Phnom Penh PHNOM PENH POST in English 27 Jan-9 Feb 95 p 15

[Report by Moeun Chhean Nariddh]

[FBIS Transcribed Text] Battambang—The number of Thai companies working with the Khmer Rouge [KR] to exploit gems around Pailin has more than doubled since early last year, Battambang provincial officials say.

Chhay Yub, chief of the province's Environmental Service, said that when government forces seized Pailin in March last year, there had been six Thai mining companies working with the Khmer Rouge.

There were now 16 firms involved, after 10 new ones were granted mining concessions by the KR, he said.

His comments—which appear to be at odds with Thai government assurances that it is cracking down on border trade in KR-occupied areas—were supported by a vice-governor of Battambang.

Chhay Yub said the Khmer Rouge had expanded its gem mining into Damban Bor Larn (Truck Driving Area) north of Pailin and were using Bavel River to sift through mounds of excavated soil to find gems.

Like the nearby Sangke River, which had already suffered from similar use by the KR, Bavel River faced serious environmental damage.

The build-up of silt from the KR's activities threatened to affect fish life and reduce the depth of the river, as had happened with the Sangke.

"The Sangke used to be called 'Stung Khieu' (the Blue River) but now it is red," he said

Fish were poisoned or fled to other rivers because their food and habitat were coated with mud.

Toch Sarin, in charge of Battambang water supplies, said water from the Sangke was no longer fit for drinking or washing unless filtered.

The provincial capital's filtering system often became clogged because of how muddy the water was.

Those people without access to the provincial capital's filtered water supplies had to rely on wells.

Dr. Sem Oeun, the Secretary of State for the Environment, said the KR's mining was also causing dangerously-high levels of minerals such as magnesium, potassium and iodine in local rivers.

Billions of cubic meters of muddy water flowing southwards, meanwhile, was raising sediment levels in the Tonle Sap Lake, making it as shallow as 1-2 meters in the dry season and 13-14 meters in the rainy season.

The KR's destruction of forests—by commercial logging, as well as the clearing of trees to allow gem-mining—was continuing at a rapid pace.

A lack of tree cover in northwestern Cambodia made the countryside more vulnerable to flooding.

Li Thuch, Under-Secretary of State for the Environment, told the Foreign Correspondents Club in Phnom Penh on January 11 that "the main destroyers of the environment are the Khmer Rouge and the rich and powerful."

He welcomed the government's ban on logging, which came into effect on January 1, but said the "implementation of that policy is another thing."

HONG KONG

British Hong Kong Authorities Urged To Review Sewage Plan

OW2501124295 Beijing XINHUA in English
1104 GMT 25 Jan 95

[FBIS Transcribed Text] Hong Kong, January 25 (XINHUA)—Zheng Guoxiong, deputy director of XINHUA NEWS AGENCY Hong Kong Branch, Monday [23 January] urged the British Hong Kong Authorities to make an overall review of its sewerage plan.

In a meeting with a group of disgruntled local fishermen, Zheng said that Hong Kong's multi-billion dollar sewerage plan lacks systematic arrangement and scientific evaluation.

Ten representatives from a league formed by 42 local fishermen's associations presented Zheng with a document expressing their opposition to Hong Kong's sewerage plan, and asked him to pass it on to Zhou Nan, Director of XINHUA NEWS AGENCY Hong Kong Branch.

The league described the sewerage plan as "harming environment, endangering the livelihood of fishermen in Hong Kong and Guangdong."

The British Hong Kong Authorities' sewerage plan, titled as "the Strategic Sewerage Disposal Scheme," includes two stages. Stage I involves the construction of a treatment plant on Stonecutters Island, while Stage II involves options to dump effluent through a 28-kilometer pipe off Ling Ding Yang.

The plan can not tackle the sewerage pollution and improve environment, but only move the effluent to sea, Zheng said, adding that the up of tidal currents would bring it back.

As pointed out by some international experts, the plan was not suited to scientific requirements and needed to be reviewed, he noted.

He called on the British Hong Kong Authorities to take into account both experts' suggestions and fishermen's interests in making up and fulfilling their sewerage plan.

HKMAO Releases Statement on Sewage Disposal Scheme

HK2601125295 Beijing ZHONGGUO XINWEN SHE in English 1146 GMT 26 Jan 95

[FBIS Transcribed Text] January 25 (CNS)—The Hong Kong and Macao Affairs Office [HKMAO] under the State Council made a statement today on the 20 billion HK dollar sewage scheme which is undertaken by the Hong Kong government and expected to be completed by the year 2003. The large project will discharge waste water into the sea at a daily volume of three million tonnes with the main outlet in the Dangan waters of the South China Sea. The Chinese government has already told the British side through the Sino-British Joint Liaison Group in August 1993 that the Chinese side expressed its great concern to this project and that it hoped consultation between the two sides on this matter in a bid to properly get it settled as early as possible. [sentence as received]

Expert teams from the two sides began consultation on this issue last July. The British side has, however, repeated in public in recent time that the first phase work on the sewage scheme would be carried out on full scale early this year regardless of progress made by the two sides on the consultation. The Hong Kong government approved a new contract on this scheme yesterday. The Chinese side conveyed its serious concern to such development and resolutely opposed to unilateral action taken by the British side while a consensus on this matter has not yet been reached by the two sides.

The statement pointed out that serious fault was found with the evaluation report on the first phase work on the scheme while at the same time there was no feasibility study on selection of outlet for sewage nor research on effects on the environment. Especially a little work which was necessary for the project has been done on evaluation of the ocean environment. The first phase work is therefore short of a solid scientific foundation. The statement added that it was too early to say what kind of long term adverse effects would be on marine resources and ecological environment in the Victoria Harbour and its neighbouring waters because of an expected daily release of three million tonnes of sewage only after a primary treatment process. The first phase project which is going to be hastily undertaken is regarded as a blind and risky item which may result in vast waste of resources and serious damage to the ocean environment in the long run. The statement said that it was an irresponsible behaviour. It is reasonable that the Chinese side asked for consultation with the British side on the sewage scheme including that on the first phase project while the Chinese side is either a party involved in the project or the very party to bear the consequence of the scheme. The statement noted that the Chinese side had no intention in disrupting the

British side to undertake the sewage disposal project before 1997. On the contrary, the Chinese side thought that it was too late for the tackling of the water pollution in the territory and it should have to be settled as soon as possible.

The statement finally said that it hoped the British side would be accountable for the long term interests of the people of Hong Kong and its neighbouring regions as well as of the natural environment. The British side should seriously hear opinion from various sectors in the territory and strike sincere cooperation with the Chinese side in properly conducting environmental evaluation as soon as possible of the entire scheme including the first phase project. Revision has to be made swiftly on the unreasonable part of the scheme.

The Chinese cannot but solemnly say that should the British-Hong Kong side insist on unilateral undertaking of its original scheme, it would have to bear all consequences.

JAPAN

Tokyo Seeks To Allay Fears Over Nuclear Waste Shipment

OW3001114695 Tokyo KYODO in English
1115 GMT 30 Jan 95

[FBIS Transcribed Text] Tokyo, Jan. 30 KYODO—The government seeks understanding and cooperation with the upcoming transport to Japan by sea of high-level nuclear waste from France, a top Foreign Ministry official said Monday [30 January].

Vice Foreign Minister Kunihiko Saito told a news conference that the Japanese Government hopes "to work to relieve concern" about the controversial transport, which is scheduled for late February.

The ship will carry high-level nuclear waste generated from the reprocessing in France of nuclear fuel spent at Japanese nuclear power plants.

In early January, three Japanese women—a journalist, an atomic bomb survivor and an antinuclear activist from Hiroshima—went to Panama to demonstrate against the ship's possible passage through the Panama canal.

The central American nation of the Dominican Republic, and the islands of Puerto Rico and Barbados have also protested against the transport.

The Japanese Government has not made the transport route public.

NORTH KOREA

IAEA Members Urged To Stop Interfering in Internal Affairs

SK3101051395 Pyongyang KCNA in English
0456 GMT 31 Jan 95

[“Some Officials of IAEA Must Not Interfere in Nation's Internal Affairs”—KCNA headline]

[FBIS Transcribed Text] Pyongyang, January 31 (KCNA)—Some individual officials of the International Atomic Energy

Agency (IAEA) must refrain from making rash utterances, interfering in the nation's internal affairs, urged a spokesman of the Committee for the Peaceful Reunification of the Fatherland in a press statement on January 30.

According to a report, at a time when many people were opposing the building of a nuclear waste dump on Kulop Islet, Ongjin County, Kyonggi Province, South Korea, Donald Shere (transcribed from Korean), chief of the nuclear waste management of the IAEA, held a press conference in Seoul, in which he said the designation of Kulop Islet as a nuclear waste dump by the South Korean authorities is a "reasonable decision" and "recommended them to promote it as planned".

The South Korean puppets are now trying to justify their crimes, noisily crying as if they received a "revelation" of god in what an individual official of the IAEA said, the statement said, and noted:

It is impudent of a person who is not directly interested in such an important matter as the designation of a nuclear waste dump and is not a party concerned to talk about "reasonableness" or "recommendation". What is worse is the flunkeyist, treacherous act of the Kim Yong-sam group who regards a foreigner's "admonition" as a "law", putting down the will of the people at the point of bayonet.

To build a nuclear waste dump on Kulop Islet is an unpardonable crime which will reduce the West Sea of Korea to a sea of death, gravely threaten the lives of the people in the coastal areas of South Korea and the north, destroy environment and aggravate the North-South confrontation.

The snobbish word of an official of the IAEA may work on Kim Yong-sam, the traitor who lives without his own principle, but never work on the Korean people who regard national independence as life and soul.

We can never remain an onlooker to the South Korean puppets' anti-national, provocative moves for building a nuclear waste dump on Kulop Islet, which will create an irretrievable danger to the existence of the whole nation and further aggravate the North-South confrontation.

The South Korean puppets must clearly see our decisive stand and will unconditionally withdraw their criminal plan to build the nuclear waste dump.

Some individual officials of the IAEA must clearly know the specific condition of Korea which remains divided and the demands of the Korean nation and refrain from interfering in the nation's internal affairs with rash words.

SOUTH KOREA

Delegation Departs for New York for Climate Convention

SK0302083995 Seoul YONHAP in English
0825 GMT 3 Feb 95

[FBIS Transcribed Text] Seoul, Feb. 3 (YONHAP)—A South Korean delegation departed for New York Friday [3 February] to attend an international meeting on climate

change to reduce the amount of carbon dioxide, the Ministry of Foreign Affairs said Friday.

The delegation will be headed by Cho Won-il, deputy permanent representative to South Korea's mission to the United Nations, and comprises a total of nine experts on energy and environment from the Ministries of Foreign Affairs, International Trade and Industry and Finance and Economy, according to the ministry.

The 11th session of the Inter-Governmental Negotiating Committee for a Framework Convention on Climate Change to be held at the United Nations from Feb. 6 to Feb. 17 aims to draft measures to reduce the amount of carbon dioxide, render financial assistance to developing countries to help reduce the amount of the toxic gas and set up a secretariat to handle the climate change issue, according to the ministry.

The convention was adopted in May, 1992, in New York and signed in Rio De Janeiro in June, 1992. The convention took effect on March 21, 1994, and now has 119 signatories.

Daily Names Possible UN-Sponsored Joint N-S Projects

SK0302072495 Seoul *TONG-A ILBO* in Korean
3 Feb 95 p 3

[Report by Kim Cha-ung from UN Headquarters in New York]

[FBIS Translated Text] On 1 February, Pak Su-kil, ROK ambassador to the United Nations, informed UN Secretary General Butrus Butrus-Ghali of 11 North-South joint projects that the ROK Government thinks are capable of being implemented immediately. Last May, the UN Development Programme [UNDP] selected and presented 20 projects that could be jointly enforced by the North and the South and requested two Koreas to inform the UNDP of the projects that have high chances.

Although North Korea has not given a reply until now, the UNDP intends to carry out the joint projects for the North and South as soon as the North replies.

The projects that the ROK informed the UNDP of as being worthy of promotion with North Korea were: establishing North-South environmental regulations; analyzing the influence of climate changes; mapping out joint countermeasures against water pollution; creating a map on biological variety; closely monitoring the environment; reporting on the ecosystem in the DMZ area; setting up a Northeast Asia environment cooperation network; building key transportation facilities in the Northeast Asia, including railways between the North and South; exchanging weather information; and unifying scientific terms between the North and the South.

Trade Ministry Prepares Environmental Guides for Industries

SK0202022495 Seoul *THE KOREA HERALD*
in English 2 Feb 95 p 8

[FBIS Transcribed Text] The government plans to create legislation to lay the groundwork for making the nation's

industries environment-friendly in preparation for the international trends of environmental controls.

The Ministry of Trade, Industry and Energy will submit to the parliament's plenary session this fall a bill on creating the ground work for making industries environment-friendly, the ministry said.

The proposed law will stipulate the guideline for drawing up an "industrial environment vision" aimed at encouraging the industrial sector to make efforts for protecting the environment on a voluntary basis as well as the comprehensive direction for accelerating environment-friendly industrial activities, it said.

The projected legislation will contain the legal foundation for working out and implementing plans for converting the nation's industrial structure into an energy-saving one.

Domestic efforts to make preparations for the introduction of the proposed international environment management standardization ISO 14000 will be specified in the bill, according to the ministry.

The bill also calls for clarifying the scope of the environment, which has emerged as a new industrial sector, and preparing the legal foundation for providing assistance on the part of other industrial fields.

Creation of the proposed law is urgent as such issues as international efforts to link trade to the environment are expected to be discussed in earnest with the launch of the World Trade Organization, ministry officials said. The nation's efforts to help its industries secure a competitive edge in the global market and make them comply with environment preservation are also needed as international environmental controls, which now focus on the curb on the use of pollutants, are expected to spread to other industrial sectors such as manufacturing, distribution and disposal, they said.

The ministry said it will unveil in the first half of the year the "industrial environment vision" on the environment impact of 10 industrial sectors, including steel, cement and paper manufacturing. The industrial environment vision will be prepared in cooperation with relevant industrial bodies and state-invested research institutes, including the Korea Institute for Industrial Economics and Trade and Korea Academy of Industrial Technology, according to the ministry.

ROK 'May Provide' Moscow With \$1 Million for Nuclear Waste

SK2601084595 Seoul *YONHAP* in English
0748 GMT 26 Jan 95

[FBIS Transcribed Text] Seoul, Jan. 26 (YONHAP)—South Korea may provide 1 million U.S. dollars worth of equipment to help Russia treat nuclear waste in the East Sea [Sea of Japan] to protect it from further contamination, Foreign Ministry officials said Thursday.

At a three-day bilateral meeting that opened in Moscow Monday, the two sides also exchanged views on ways to

prevent dumping of nuclear waste into the East Sea and other environmental issues, according to the officials.

During the first meeting of the joint committee on environmental cooperation between South Korea and Russia, the two sides agreed to exchange experts to boost the "green" industry which is growing fast in both countries, they said.

Choe Yong-chin, director-general of the ministry's International Economic Affairs Bureau, represented South Korea at the meeting while the Russian side was led by M.B. Mikhail, deputy minister of the Ministry of Protection of the Environment and Natural Resources of the Russian Federation.

Joint projects proposed during the meeting included exchanges of environment-related information, studies on migratory birds and rare species, and construction of sewage treatment facilities in Sakhalin and the Russian Far East city of Khabarovsk.

The two sides agreed to hold the second meeting of the joint committee on environmental cooperation in Seoul early next year, the officials said.

A meeting of experts on migratory birds was also held in Moscow Tuesday to discuss protecting over 300 species of birds and studying their migration routes, they added.

Opposition Invites DPRK Experts to Environmental Meeting

SK2701004395 Seoul *THE KOREA TIMES* in English
27 Jan 95 p 2

[FBIS Transcribed Text] Rep. Kim Sang-hyon of the opposition Democratic Party revealed yesterday that he has invited two North Korean environmental experts to an international symposium set for early next month in Seoul.

"I have already sent invitations to Cho Yong-nam and Chong Chun-ki, chairmen of North Korea's two environment-related committees," Kim told reporters. But he added that he has not yet received any response from them.

"It will be very meaningful if they participate in the symposium sponsored by International Green Cross because a South-North joint preparation for the environmental question has become a big issue in the course of realizing a national reunification." Kim said.

Kim said that as he had received a permit from the government to invite the two North Koreans, he will push for contacts with them during his visit to Beijing from today until Sunday.

"It is still unclear whether Cho and Chong will come to Beijing though I asked the North Korean embassy there to organize my meeting with them," the adviser to the main opposition party said.

EAST ASIA

MALAYSIA

Mahathir Urges Ships Not To Pollute Straits of Melacca

BK0102091095 Kuala Lumpur *Voice of Malaysia* in English 0600 GMT 1 Feb 95

[FBIS Transcribed Text] Datuk Sri Dr. Mahathir Mohamed wants international shipping lines to stop discharging waste which would cause pollution to the Straits of Melacca. He said although it is an international water, any pollution to the straits will burden the surrounding countries. The ships are using the straits without having to pay any toll and it is proper that they should keep the water clean.

Asked by reporters in Kuala Lumpur, the prime minister said Malaysia, Indonesia, and Singapore had spent a lot of money to maintain the straits and it was time for the international community to ensure that their ships would not cause any pollution.

Asked about the disappearance of the two ships detained for discharging toxic waste at Tanjung Piai waters, Datuk Sri Dr. Mahathir said this was because Malaysia did not have much experience in handling such cases, especially in coordination work. However, the government would certainly take action against the two ships after gathering sufficient evidence against them. Malaysia would seek Singapore's assistance to detect the ships.

PHILIPPINES

DBP, German Bank Give Aid for Environmentally-Safe Projects

BK2501082995 Manila *BUSINESS WORLD* in English
23 Jan 95 p 17

[Report by Elisha R. Garcia]

[FBIS Transcribed Text] The Development Bank of the Philippines (DBP) and the Kreditanstalt fur Wiederaufbau (KfW) of Germany has made available a total of P[Philippine pesos]160 million in loans for environmental enhancement projects and another P16 million as technical assistance to small- and medium-scale manufacturing firms that particularly invest in environmental-friendly projects.

KfW is one of two of DBP's foreign sources of loans which are extended to small- and medium-scale enterprises that need to acquire capital goods and services from other developed countries. The other one is the Swiss Federation, a consortium of Swiss banks, which locally offers similar on loan facilities as the KfW.

In a speech at the first environmental and pollution management and technology conference, DBP chairman Alfredo C. Antonio said the bank is offering incentives under its lending programs like concessional interest rates as well as less restrictive loan conditions for environmental projects, particularly those under industrial support expansion programs.

Furthermore, the projects will not be subject to the credit limit of P99.99 million for regular loans while technical assistance will be made available without any cost to the borrower.

The possibility of giving interest rebates for projects able to meet pre-arranged environmental goals are also being studied. Prearranged environmental goals include emission and effluent limits, employment of environmentally sound production processes and the adoption of health and safety assurance systems, among others.

The interest rebate scheme, Mr. Antonio said, presupposes an agreement between the borrower and the DBP with appropriate solutions provided in the contract. The interest rebate scheme, furthermore, will involve self-monitoring of environmental performance and the validation of the environmental statement by an independent auditor.

With the availability of the funds, it is hoped that the first project under the lending scheme will be approved this year. Assisting the bank is the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR) and other concerned agencies of Government.

Recently, the DBP and the EMB signed a joint memorandum of agreement with companies involved in the production of cement, paper, textile, semiconductors and metal working declaring a moratorium allowing these companies to continue operating inspite of their inability to meet anti-pollution standards. This is, provided that they come up with corrective measures within a specific time frame to enable them to comply with existing regulations.

On the other hand, the bank has been able to expand the number of pilot tests in the companies in the aforementioned industries that have met success in reducing pollution through technical assistance and grants from abroad.

Denmark Grants 160 Million Pesos for Pasig River Clean-Up

BK2601065695 Manila BUSINESS WORLD in English 24 Jan 95 pp 3, 4

[Report by Maricris C. Carlos]

[FBIS Transcribed Text] The Danish International Development Assistance (Danida) has approved a P [Philippine pesos] 160-million grant as additional support for government's Pasig River Rehabilitation Program (PRRP).

Environment Secretary Angel C. Alcala yesterday disclosed the Danida grant will in effect serve as phase two of the PRRP project.

PRRP is spearheaded by First Lady Amelita Ramos and aims to rehabilitate the Pasig River. Government received some P52 million in grants during the past year for phase one of the project, which is set to be finished in May.

In a report to Mr. Alcala dated 7 January, PRRP project leader Oscar Temporal said among the conditions Danida attached to the grant is a commitment from the Philippine

Government to place "more Philippine personnel" and counterpart funds to the project to ensure its sustainability.

He pointed out Danida is also asking the Philippine Government to strengthen the social component of the program by infusing more manpower and funds into these kinds of projects.

Mr. Temporal cited the additional Danida grant will be focused on financing components of the project to:

- strengthen the coordination, planning, and monitoring capacity of concerned agencies, including the Department of Environment and Natural Resources (DENR) and its Environmental Management Bureau (EMB) in monitoring and managing the river's resources. This specific component of the project also seeks to support community-based projects aimed at improving the management of solid and liquid wastes as well as the improvement of the living condition of people living around the river;

- upgrade the laboratory facilities of the DENR-EMB to enhance the department's capability to monitor and process laboratory analysis of water samples from the river; and,

- conduct a study establishing the social and economic impacts of the proposed plan to flush out Pasig River and rid it of pollution.

Mr. Temporal said the grant also includes monitoring of the Manila Bay, which is part of the Pasig River system.

Meanwhile, Mr. Alcala said DENR and other government agencies are now facilitating the relocation of some 2,400 squatter families living in the river area as part of the clean-up efforts for the project.

These squatter families must be relocated, he explained, since these households, based on studies done by the DENR, contribute more to the pollution than industries do.

He said resettlement sites for these squatter families have been prepared in Dasmariñas, Cavite.

Ramos Commissions Patrol Boat To Fight Poachers, Oil Spills

BK0302043195 Quezon City PTV-4 Television Network in Tagalog 1000 GMT 2 Feb 95

[FBIS Translated Text] President Ramos today reiterated his government's determination to protect our natural resources, especially our rich fishing areas. The president made the statement during the formal commissioning of MV Bantay Kalikasan [Environmental Guardian], Philippine Navy's newest patrol boat.

Ramos said the administration's launching of the new naval vessel is a serious warning to those destroying our rich fishing grounds. MV Bantay Kalikasan has the latest equipment to effectively safeguard our waters. Aside from monitoring the fishing areas, the new patrol craft can also be used to control oil spills.

SINGAPORE

Metal Industries Reported Using Harmful Chemical

*BK2601153695 Singapore Radio One in English
1400 GMT 26 Jan 95*

[FBIS Transcribed Text] More metal-working industries are believed to be using the potentially harmful chemical called TCE or trichloroethymine in their production process. The Labor Ministry told RTS [Radio Television Singapore] News TCE can cause liver damage, rashes, and very prolonged exposure—death. While only a handful of cases of TCE allergies have been reported before, potential cases can arise with increased usage.

TAIWAN

Taipei Considers Dumping Nuclear Waste in Marshall Islands

*OW2701063695 Taipei Voice of Free China in English
0200 GMT 26 Jan 95*

[FBIS Transcribed Text] Taiwan is considering the possibility of dumping its nuclear waste in the Pacific Ocean's Marshall Islands, a senior official said Tuesday [24 January]. According to the official, the Marshall Islands Government told Taiwan, Japan, and South Korea at a recent conference it was willing to provide an uninhabited island for nuclear waste storage.

Taiwan operates three nuclear power plants and a fourth is under construction. Waste is currently dumped on Orchid Island, just off Taiwan's southern coast, but the site will be full within two years. Construction of additional nuclear waste dump sites in Taiwan proper is strongly opposed by local environmentalists.

THAILAND

EGAT Scraps Plans for Two Power Plants, Dam

*BK2701053595 Bangkok THE NATION in English
27 Jan 95 p A7*

[Report by James Fahn]

[FBIS Transcribed Text] The Electricity Generating Authority of Thailand (Egat) has canceled plans to build two lignite-fired power plants at Mae Kham in Lampang province in what a top environmental official has described as an "historic decision".

The Mae Lanna hydro-electric dam project in Mae Hong Son province, which would have diverted water from the Salween River basin to feed the Phumiphon Dam reservoir, has also been scrapped.

Both decisions were made at an Egat board of directors meeting held one week ago, according to an Egat official.

Egat had planned to invite bids for investment in two 150-megawatt power plants at Mae Kham, located about

100 kilometres from the Mae Mo complex of lignite-burning power plants, whose sulphur dioxide emissions have caused environmental and health problems for local villagers.

The Mae Kham project was to have been run in a similar manner to the Independent Power Producers (IPP) programme, under which private investors are allowed to build, operate and own power plants that supply electricity to the national grid. Many companies were reported to have expressed interest in the programme.

However, Egat's board of directors decided the project was not feasible if environmental costs were taken into account, board member Kasem Sanitwong, permanent secretary at the Ministry of Science, Technology and Environment, explained in a recent interview with The Nation.

"This is the first project in (Thai) history to have considered the cost to the environment in a feasibility study," Kasem said.

"Up until now, agencies have viewed environmental costs as add-on costs. But if they are included in the feasibility study, a project can show a lower rate of return, thus making the project non-cost-effective."

"We need to include environmental costs in the project analysis right from the very beginning," Kasem stressed.

Rachada Thongyu, an Egat public relations officer, confirmed that the board of directors decided at its meeting on Jan 20 to abandon the Mae Kham project because of environmental concerns.

Rachada said the Mae Kham feasibility study was conducted by Powertech, a U.S.-based firm of consultants. Further details—including the total environmental costs as calculated by Powertech—were not immediately available.

However, a significant amount of investment would have been needed to reduce the air pollution emitted by the power plants to ensure compliance with environmental standards.

Reports indicate the plants would have been equipped with fluidized-bed combustion, a new type of coal-burning technology that significantly reduces sulphur dioxide emissions. Flu-gas desulphurization units, another type of technology often used to clean up sulphurous emissions, can raise overall costs by 2030 per cent.

The Mae Kham project would also have had problems securing adequate supplies of water to run the power plants.

The move to cancel the project seems to be part of a growing trend for energy planners to rely more on imported coal and natural gas as power sources. Both cause less pollution than lignite, a dirty form of coal. The lignite found in Thailand has a particularly high sulphur and moisture content.

Egat is, however, planning to purchase electricity from lignite-fired power plants due to be built in Hong Sa, Laos—about 100 kms from the Thai border—by a Thai-Lao joint venture firm.

Rachada added that Egat's board of directors had also decided to abandon the Mae Lama Luang dam project in Sop Moei district in Mae Hong Son province. According to the Seventh Power Development Plan, the project would have produced 160 MW of power and was due to be commissioned by 1999.

"The results of this feasibility study clearly show that the project was inappropriate," Rachada said.

The Mae Lama Luang project also had international implications since it would have meant diverting water from a river which flows into Burma to feed the Phumiphon Dam reservoir in Thailand's Chao Phya River basin. The project would have called for the damming of the Yuam River.

Official Urges Environment Management Reform

*BK3101092695 Bangkok THE NATION in English
31 Jan 95 p A 6*

[FBIS Transcribed Text] More than two years have passed since Thailand's environmental law was amended to improve management of the kingdom's natural resources.

Few would deny the changes have had a beneficial effect. Three new environment agencies were created out of the former Office of the National Environment Board and placed within a revamped Ministry of Science, Technology and Environment (Moste). Green regulators have been given more power, and tensions between the environmental agencies and the Ministry of Industry, which also has regulatory authority, have been reduced.

Yet it is becoming ever clearer that the reform of the government's environmental institutions is not yet complete. This was highlighted in a bold speech made late last year by Kasem Sanitwong, Moste's permanent secretary and a highly respected technocrat, who urged that a separate Ministry of Environment be created.

As things stand, Kasem noted, "science and technology come before the environment".

Kasem is not the only expert, whether from the public or private sector, to see the need for reform, but so far he is the only one with enough courage and clout to speak out publicly on the issue.

In a recent interview with THE NATION, he elaborated on his vision. Kasem cited two major institutional problems: the agencies in charge of protecting national parks, wildlife sanctuaries and watersheds are unable to fulfill their duties so long as they remain in the economic-oriented Royal Forestry Department [RFD]; and the task of environmental management is simply too large for the agencies within Moste.

"Even with the 1992 amendments to the environmental act, environmental management is still not transparent

enough," he explained. "The burden of environmental management is big enough for an entire ministry; it's difficult to allocate time to (promote) science and technology also."

"The nature of the job is so different. Science and technology are tools for environmental management; they are not ends in themselves," he added. "The biggest problem with environmental management is not a lack of tools, but a lack of political will to combat the vested interests (which benefit from unregulated development)."

Hence the need for a separate Ministry of Environment. "With a new ministry, the heads of departments can concentrate their time and knowledge on one issue, making management much more efficient."

Kasem pointed to the Pollution Control Department, one of the three new Moste agencies, as an example. It is currently responsible for management of waste water, solid waste and air pollution, among other tasks.

"This work actually requires three separate departments. Managing all these problems with just one department is impossible," he asserted.

Kasem also stressed the need for improved environmental management on provincial level.

"Eventually, we have to have environmental officials in every province—just as there are industrial representatives in each province now—to cope with pollution and natural resource problems." Currently, the ministry must make do with a representative in each region.

"The law says we should transfer authority to local government officials, but they don't have the proper training. Lack of experience is a big problem," worries Kasem. "We are working to solve that but it will take a long time." The Ministry of Science, Technology and Environment is not the only institution which needs to undergo change—or, rather, division into two separate ministries—the Royal Forestry Department also needs to reformed.

"Many agencies need to be moved," he stated. "The divisions in charge of national parks, wildlife sanctuaries, and watershed management should not be part of the Royal Forestry Department."

Just as managing the environment different from promoting science and technology, "Managing a protected area is so different from managing forests for exploitation, for money," Kasem explains.

"The RFD usually puts the wrong man in the wrong place. Those who have been studying and learning protected area management don't get the jobs they should."

Many conservation officials in the RFD agree with Kasem's views, and complain that their agency is dominated by economic-minded foresters who refuse to make concessions to the need for conservation. But while such concerns are often voiced privately, the officials refuse to be quoted in public because it would ruin their careers.

There have been proposals to bring the RFD's conservation agencies and Moste's environmental management agencies together to create a new ministry.

But it might also put all of Thailand's "green eggs" in one basket, making environmental administration overly centralized and vulnerable to abuse by a weak or ill-intentioned minister.

"Even if the RFD's conservation agencies don't move to a new ministry and stay within the Agriculture Ministry, they should at least be moved out of the Forestry Department," Kasem urges.

But there is a strong case for moving them out of the Agriculture Ministry altogether, since it too is driven by economics. As long as conservation officials remain under the ministry's control, their concern will come second to, say those of the dam-builders in the Royal Irrigation Department, another agency in this ministry.

Simply put, conservation is a far cry from agriculture. And it is a lot less lucrative.

Kasem is aware that moving agencies around will not be easy. Many vested interests will oppose it. "Establishing a new ministry and new departments requires a new law and a lot of guts," he admits.

But other, perhaps more radical, institutional changes are being attempted, including the privatization of power production and the telecommunications authorities. And, as Kasem points out, "the environment has become the biggest negative issue in Thai society."

Indeed, in the last days of the Anan II administration, some Cabinet members actually proposed reforming the RFD. But there was too little time left to carry out the task. Once the Chuan administration took over, the proposal fell by the wayside.

So just how much of a chance does Kasem's proposal stand of being implemented? The civil servant will only say that he is trying to "spark the government".

"I hope this government will take it into consideration."

Kasem readily admits that the reforms he is suggesting will not solve all of the Thailand's environmental problems. But, he concludes, "it will help ease many, many troubling conflicts."

EGAT Scraps Five Large-Scale Power Projects
BK0102065495 Bangkok BANGKOK POST in English
1 Feb 95 p 16

[FBIS Transcribed Text] The Electricity Generating Authority of Thailand [EGAT] has scrapped five

large-scale power generation projects for various reasons ranging from their questionable economic viability to environmental sensitivity.

Deleted from EGAT's latest revised Power Development Plan for implementation are the Ao Phai coal-fired power station in Chon Buri, the Mae Kham and Lampang lignite-fired power houses in Lampang, the Kaeng Krung hydro power project in Surat Thani, and the Mae Lanna Luang development in Mae Hong Son.

According to Bunchu Diresathaphon, assistant to EGAT's general manager, economic studies show that the Mae Kham and Lampang schemes are not feasible because of their high investment and operating costs.

Their economic viability is further aggravated by the recent tariff cut in imported coal from 25 percent to 1 percent. The Mae Kham and Lampang projects are based on indigenous lignite which provides less heating value than imported coal.

The scrapping of the Kaeng Krung and Mae Lanna Luang hydro projects is due to protests from people at the construction sites and from environmentalists.

The Ao Phai plan was terminated because it is not environmentally acceptable due to its close proximity to the community.

Similar environmental sensitivity applies to the decision to kill the Kaeng Krung and Mae Lanna Luang plants.

EGAT has decided to substitute the Ao Phai project with a project to build a large power house, with generating capacity of up 4,000 MW, in Prachuab Khiri Khan.

The power authority has not decided what to do with the land acquired for the Ao Phai Project. "It might be turned into a resort," said one EGAT wag.

Under the revised EGAT plan under the 7th National Plan (1992-1996), a total of 29 new projects with a combined generating capacity of 13,268 MW are targeted to be implemented.

They include 21 schemes with a total capacity of 7,557 MW to be implemented by EGAT, four by independent power producers (4,100 MW), and four projects in Laos (1,611 MW).

The projects EGAT will implement in the 7th plan comprise one hydro-electric project, 12 thermal plants, seven transmission schemes and one system expansion plan. These EGAT projects are estimated to cost 191 billion baht.

For the next 8th plan (1997-2001), there is a line-up of 15 projects with an aggregate capacity of 7,500 MW and investment of more than 300 billion baht to be carried out.

CZECH REPUBLIC

Klaus Views Temelin As Grandiose Project
95CH0087D Prague LIDOVE NOVINY in Czech
29 Oct 94 p 2

[Article by dan: "Prime Minister Vaclav Klaus Considers Temelin To Be a Grandiose Project"]

[FBIS Translated Text] Temelin (dan)—On Thursday, Prime Minister Vaclav Klaus and Ministers Vladimir Dlouhy and Frantisek Benda visited the nuclear power plant at Temelin. According to government representatives, the delegation arrived in order to support the completion of the Temelin Nuclear Power Plant (JETE).

"It is a grandiose and unique project which should be appreciated," said Prime Minister Vaclav Klaus. He added that a government delegation had also negotiated with representatives of the CEZ [Czech Electric Energy Enterprises], joint-stock corporation, regarding the possibilities for compensation to be paid for those surrounding communities that were originally negative with regard to construction of the facility. The chairman of the board of directors of the CEZ, Petr Karas, added that assistance should be aimed at supporting entrepreneurial activities intended to improve the environment.

As far as the atomic law is concerned, the prime minister will, in the immediate future, convene a meeting to go over its initial concept, which has already been prepared. Minister Benda stated that the law should contain "a special Temelin supplement" which would regulate the conditions for the shipment of fuel and the building inspection proceedings. According to Benda, the atomic law can only have an effect on this facility that way. However, V. Klaus is of the opinion that current legal standards do not prevent start-up at Temelin and that the new law should merely recapitulate these standards and augment them in the form of a general law. Initiation of the so-called licensing operation for the electric power plant is expected to occur in April 1997.

Austrian View of Temelin Power Station Explained
95CH0087C Prague LIDOVE NOVINY in Czech
2 Nov 94 p 8

[Article by Jiri Beranek, chairman of the Czech Nuclear Forum: "The Eagle and the Lion or Austria and Temelin"]

[FBIS Translated Text] It is a beautiful day in late summer and we are sitting together with Austrian friends in a cozy restaurant in the Styrian town of Frohnleiten on the banks of the River Mur. This is a little town which is attractive as a result of its picturesque nature, but also as a result of its renovated church with its new organ, which cost 6 million Austrian schillings, and primarily as a result of the unprecedented flood of blossoms to be seen in all public areas, in the newly established parks, in other words, everywhere. A rich little town. In an isolated valley, they managed to find room for depositing waste materials from the nearby town of Styrsky Hradec, at an annual revenue of 60 million schillings. Neighboring towns are envious and reports are

spreading that although Frohnleiten is getting rich, the health of the population is somehow threatened. Nevertheless, the little town is suffused with flowers and it is hard to find a seat in its restaurants.

What Are They Talking About?

As is customary, the subject of conversations is primarily politics. The main question involving Austria's entrance into Europe was convincingly resolved by a referendum. The preelection campaign concentrated on revealing various affairs involving individual politicians, but, surprisingly, the otherwise very lively political topic of nuclear energy and particularly the topic of resistance to the construction of the Czech electric power plant at Temelin were absent. Does this mean that the era of the merciless struggle against Temelin is coming to an end? Unfortunately, this is not the case. All of Austria's political parties and the majority of the population are opposed to nuclear energy. However, it is also true that the object of concentrated assaults is only Czech nuclear energy, despite the fact that nuclear power plants exist in all countries bordering on Austria, with the exception of Italy.

The roots of Austria's antinuclear policy must be sought primarily in the unhappy referendum of 1978, which involved the virtually completed nuclear power plant at Zwentendorf. The excessively politicized atmosphere at that time, which primarily involved the prestige of the political parties and not the actual object of the referendum, led to surprising results: 31.6 percent were opposed, 31 percent were in favor, with 35.9 percent of authorized voters abstaining, and 1.5 percent of the votes invalidated. It was a narrow result. The number of invalid votes was three times greater than 0.6 percent, which was the number of votes deciding the outcome. The consequences of the referendum—a multibillion-schilling loss, a chronic shortage of energy resources in Austria, indirect influence upon the level of Austrian industry, and the trauma of sour grapes and envy of the neighbor's goat to boot. If we cannot, then no one else can. Over the course of the years, the antinuclear attitude has become a state ideology, pursued with virtually religious zeal ranging through fanaticism. And because the Empress Marie Terezie had assigned priority to loyalty in her decrees governing state officials over competence, it is no surprise that there is essentially no opposition to the state policy. Anyone who cares for themselves is opposed to nuclear energy; and anyone who wants to draw attention to themselves organizes actions against Temelin. It is said that the antinuclear zeal goes so far that next year the likeness of Nobel Prize winner E. Schroedinger, who is an important scientist in the area of quantum physics, will disappear from Austrian 1,000-schilling bank notes, despite the fact that quantum physics does not have much in common directly with nuclear energy, but, nevertheless, there is nothing like consistency.

Envious Relatives

But how can one explain the fact that the attention of Austrian government circles is concentrated virtually

exclusively against nuclear energy in the Czech Republic? Many stimuli for contemplating the reasons for this unilateral focus are contained in the book written by the important publicist Alfred Payleitner under the title of *The Eagle and the Lion*, which bears the subtitle, "Austrians and Czechs—envious relatives," which was issued in Austria in 1990. As far as I know, Czech literature does not contain a similar publication. Even this is proof of the fact that, as a result of the establishment of an independent state in 1918, the Czech public quickly forgot those 300 years spent under Austria—much like it is easy to rapidly forget everything that is unpleasant and which has already been overcome. Not so Austria. The feeling of a lack of confidence in and a suspicion of everything Czech, this "envious kinship" remains alive in the Austrian subconscious without any marked difference between generations. The above-cited book contains enough examples to support this contention. Proof can be found in a sentence in an article written by the Prague correspondent of the daily DIE PRESSE who, in August of this year, notes that although the Czechs are prospering, they are unable to rid themselves of their plebeian methods. This is a new formulation for the old view that although the Czechs are assiduous, they are inconsistent, lack any great oversight, are unreliable and irresponsible, and, thus, not capable of making correct decisions. Perhaps this viewpoint is best illustrated by an U.S. cartoonist, who is not only a specialist in nuclear energy, but also an expert on central European conditions.

How could it be that this admirably expressive drawing could originate as far away as Washington? The answer is simple. For Austrian officialdom, the central European area was far too small and that is why, at the beginning of this year, it opened a second front in the United States for the Temelin conflict.

A Slap in the Face From Washington

To illustrate the course and results of this action, let us use an article published in the May issue of the Austrian economic-ecologic monthly A 3 UMWELT, No. 5, 1994. A two-page article entitled "Slaps in the Face From Washington" contains part of a letter written by I. Selin, the head of the U.S. NRC [Nuclear Regulatory Commission], an independent federal organization which exercises oversight over all U.S. nuclear facilities. Let us present only the principal passage:

"The Office of the Austrian Chancellor spent about 2.2 million Austrian schillings on the U.S. trip of the anti-Temelin delegation. The result is well-known. However, it remains silent regarding the disgraceful debacle that befell the head of the Austrian delegation, Manfred Heindler, at the hands of the chief of the U.S. commission." So much for a quote from the lead paragraph.

As is known even from our press, "a special delegation of the Austrian Government set out for Washington at the beginning of this year in order to overturn the decision by the U.S. Export-Import Bank to grant credits to finance the well-known and essential modifications to be made to the

Temelin reactor, which are being performed by the U.S. firm of Westinghouse.... This expedition, costing millions, which was paid for by the taxpayers, not only led to failure regarding the entire matter, but, at the same time, to the disgrace of Austrian nuclear experts dispatched by the Austrian federal chancellor."

The first and only direct negotiations between the Austrian group and I. Selin took place on 18 February 1994 and the record of the negotiations is not available. However, on 8 March the head of the Austrian delegation, M. Heindler, wrote a letter in which he characterizes I. Selin and his office more or less as a club of bureaucrats who are void of knowledge and interest and who know nothing at all about Temelin, using six points to illustrate his case. M. Heindler, who is accustomed to internal Austrian political manners, sent this three-page letter to members of Congress, to officials of other state offices, as well as to advisers of Vice President Albert Gore. The contents of the letter were communicated to the Austrian mass media as well, which hastily informed the Austrian public regarding the ignorance of the U.S. oversight commission. However, M. Heindler is holding Selin's response of 18 March under lock and key for good reason—it is a document regarding a disgrace on an international scale which Austria earned by initiating the Temelin witch-hunt in the United States.

From the letter, which would certainly be worth publishing in toto, again a few excerpts:

Addressing Mr. Heindler: "I would have valued the opportunity to correct the inaccuracy and erroneous conjectures regarding my views before you disseminated your letter. Under these circumstances, I am compelled to disseminate a copy of my letter to the same addressees who received your letter." This is unusual frankness in correspondence at this level, but M. Heindler did not deserve anything better.

I. Selin further writes: "We have expressed our full support for this project and we shall support its realization." From an attachment to this letter: "As far as evaluating the level of nuclear safety in the Czech Republic is concerned, we have not conducted and shall not conduct a systematic evaluation because this is a matter of a sovereign decision for the Czech Republic." I. Selin rejects that portion of the Heindler letter according to which he is alleged to have stated in their conversation "that I shall not feel responsible if in two years after start-up there is an accident." And he adds that "the VVER-1000 are the most progressive Soviet reactors. While those reactors which are in operation have certain shortcomings in comparison with Western models, the VVER-1000 reactors will be built in accordance with stricter standards. By acquiring equipment from Westinghouse, the safety of the facilities will climb to acceptable levels. This level is fully responsive to the principles which were accepted by the U.S. Government, as well as by the G7 group for assistance in the area of nuclear safety in central and East Europe."

In conclusion, I. Selin once more rejects the efforts by the Austrian mission to get the Americans to play the role of a

governess, both for Temelin and also for Bohemia in general. "As a sovereign state, the Czech Republic is responsible for its conclusions and actions, which is a principle anchored in the safety principles of the International Atomic Energy Agency [IAEA], and which is, at the same time, an international law." The article in the journal A 3 UMWELT ends with the words: "Merk's Oesterreich" ("Take heed, Austria").

The Subject Is Temelin

Let us return to Austria. On 21 March of this year, after a long time, there was an encouraging event. The Association of Austrian Engineers and Architects, in collaboration with the Czech Nuclear Forum and a number of nuclear corporations from neighboring countries, organized a conference on nuclear safety at nuclear power plants in countries neighboring Austria. Leading experts from Austria, the Czech Republic, Hungary, Germany, Slovakia, Slovenia, as well as Switzerland, presented a number of objective papers. Although even numerous representatives of the antinuclear mindset participated in these negotiations, the discussion was not very rich. With the sole exception of Temelin.

Neither in the Austrian press nor on Austrian television was there any mention of this interesting gathering. Unfortunately, not even the Czech communications media mentioned it. An open letter written by 13 Austrian university professors was published on the occasion of the above conference and dealt with the campaign against Czech nuclear energy. Not even this letter received appropriate attention in the Czech press. A pity. As far as the Austrian university professors were concerned, this was a question of civic courage or, as they say in Austria, civilian courage. There was said to be only a single reaction on the Austrian side—one of the professors was summoned before a government facility where he was told that although he had the right to publish the letter, it would be better to consult regarding its content prior to publication.

As far as the Greenpeace movement is concerned, it is a positive finding that it lacks the support of the Austrian population for its violent actions. The lack of selectivity regarding the means which Greenpeace employs does not correspond to either the Czech or the Austrian mentality. Austrians do not like violence and respect personal and property freedom. They resolve disputes in the courts, they like to do so, and they do so passionately.

In no event are the above-listed facts a signal for a possible change in the Austrian attitude. As we know from history, Austro-Czech conflicts do not normally end in sensible solutions, much like conflicts between jealous relatives do not. With one exception: Old disputes are forgotten if there is a new and pristine conflict of greater significance.

But let us again return to the little town of Frohnleiten, to the overabundance of flowers, to sit down with our Austrian friends. I hope that within the framework of good-neighborly relationships I shall invite them sometime in the future to visit a similarly attractive little town in Bohemia. Perhaps to Tyna nad Vltavou.

Greenpeace Condemns Plan To Clean Nuclear Waste in Russia

95CH0087A Prague ZEMEDELSKE NOVINY
in Czech 17 Dec 94 p 1

[Article by Pavel Stastka, CTK: "Greenpeace: By 'Cleaning' Nuclear Waste in Russia, the Czech Republic Would Be Violating the Law as Well as International Agreements Regarding the Nonproliferation of Nuclear Weapons"]

[FBIS Translated Text] According to the Greenpeace international ecological organization, the consummation of the Czech-Russian intergovernmental agreement on cooperation in the area of nuclear energy could threaten not only the security of the Czech Republic, but all of Europe as well. On behalf of this country, the agreement was signed on 4 December by Minister of Finance I. Kocarnik. The agreement would become valid upon approval in the parliaments of both countries and that is why Greenpeace is challenging the legislative bodies to reject the agreement.

The Greenpeace organization has acquired the text of the agreement in its Russian version. As noted by a representative of the organization, P. Hlobil, the language indicates that the Czech Republic may reprocess expended fuel in Russia and will receive nuclear waste, including plutonium, back in turn. According to him, plutonium is usable in the production of nuclear weapons and that is why the agreement violates the spirit of the international Treaty on Nonproliferation of Nuclear Weapons.

According to A. Knorre, from the Russian branch of Greenpeace, the treaty even violates valid Russian laws, particularly the law on protecting the environment. That law allegedly prohibits the importation of radioactive wastes and materials onto the territory of the Russian Federation for purposes of storage and deposit. The reminder that this would be neither a case of storage nor deposit, but of reprocessing and returning the original nuclear waste material, was rejected by A. Knorre. Together with Hlobil, he raised the argument against statements emanating from the press center of the Russian Mayak enterprise, which would be reprocessing the waste materials in the city of Chelyabinsk-65. These data indicate that after chemical reprocessing of one ton of expended fuel there arise, among others, 150 tons of moderately active wastes and 2,000 tons of low-grade radioactive fluids. According to experts, these wastes cannot be reprocessed any further and, therefore, so-called equivalent materials, that is to say, solid highly radioactive waste materials, would be shipped to the Czech Republic. Thousands of tons of radioactive water and liquid moderately radioactive waste materials would be released into open catchment basins at the Mayak Combine which allegedly is already today referred to as the "permanent Chernobyl catastrophe."

The spokesman for the Ministry of Finance, P. Benes, and his colleague from the Ministry of Industry and Commerce, K. Cermak, confirmed yesterday that as long as the conditions in the market for nuclear energy raw materials tend to "commercially prefer the utilization of a mixture of

oxidized fuels—uranium and plutonium,” the Czech side will ask Russia to reprocess expended nuclear fuel. Then, it is alleged that no waste material resulting from the reprocessing of expended fuel will remain on the territory of Russia. The spokespersons further stated that the agreement is not a commercial contract, but a general agreement which defines the framework of possible collaboration for interested organizations. These will, allegedly, themselves decide what work would be carried out and the extent to which this work would be carried out. According to Benes and Cermak, no waste materials are to be shipped to Russia for the present. “However, it is not possible to exclude the fact that a favorable situation will develop in the market for the use of mixed fuels and that is why these fuels are considered in the agreement,” they added.

However, P. Hlobil claims that the Czech Republic has no nuclear power plants that use these fuel mixtures.

POLAND

Water Economy Agreement With Germany Implemented

WS3101113795 Warsaw POLSKA ZBROJNA in Polish
31 Jan 95 p 3

[Report by “BZ”: “Polish-German Agreement: Mutual Waste?”]

[FBIS Translated Text] Nearly 400 kilometers of our western border are on the Odra and Nysa Luzycka rivers. This means that we are destined to cooperate with our powerful western neighbor on issues pertaining to water management.

Poland and Germany signed an agreement on water economy nearly three years ago, on 19 May 1992. Poland did not ratify it for quite a long time. Currently, a joint Polish-German sewage treatment plant is under construction in Swinoujscie.

The plant is to treat 25 thousand cubic meters of waste from Poland and approximately seven thousand cubic meters of waste from Germany per day. The German partners have taken on the obligation to supply the necessary equipment worth 20 million marks, which makes up for one fourth of the cost of the whole enterprise.

The investment is a model example of the practical implementation of the aforesaid agreement.

The chief objective of cooperation is the elimination of pollution in waters close to our border and their rational utilization. Both sides are to secure proper maintenance of all the water, flow regulation, and flood control structures. The agreement also provides for carrying out joint measurements, as well as hydrological and hydrogeological protection of surface and subterranean waters.

Sewage treatment plants are constructed mostly on the territory of Poland, regardless of the amount of waste supplied to the plant by each side. This is due to lower implementation and operational costs in our country. One advantage of such a solution is that new jobs are created. Moreover, fees are collected for sewage treatment. It is not fortunate, however, that waste is utilized on our territory as it poses a hazard to the natural environment. Thus initiatives to build and operate joint sewage treatment plants should be consulted with the state administration in the planning phase of such projects.

Opole Waste Plan: Raises Fears of Dioxin, Other Pollution

MM3101171295 Opole NOWA TRYBUNA OPOLSKA
in Polish 25 Jan 95 p 3

[Article by Jaroslaw Majcher: “Poison at the Center of the City: Nowhere in the World Are Waste Incinerating Plants Indifferent to the Environment”]

[FBIS Translated Text] Within the next two or three years the Odra cement plant in Opole will have undergone modernization at the cost of some 30 million German marks [DM]. Apart from the targeted reduction of airborne dust in the area, the new technologies introduced will make it possible for city waste to be incinerated. Local self-government leaders are already patting themselves on the back over this solution. The problem of what to do with the mountain of rubbish will finally disappear. Unfortunately, the disappearance will be merely illusory.

According to a report published by the international environmental agency Greenpeace, the use of waste-incinerating plants does not result in really eliminating waste: It is merely a method of concealing the problem of toxic wastes from the eyes and the awareness of the public.

The chemical process known as combustion does not result in the disappearance of matter. All that happens is that rapid oxidation in high temperatures causes new chemical compounds to form and assists in their subsequent emission into the atmosphere.

“We do not know which is worse,” Grazyna Wasilewska of the Opole branch of the Sanitary and Epidemiological Inspectorate weighs the question. “to store waste in environmentally offensive free-standing dumps from which, washed by rain, the toxins will seep into the groundwater, or to emit poisons into the air which will then be breathed by significantly larger numbers of people.... And, since we do not know what waste materials will be incinerated, we have no way of predicting with any certainty which substances might be emitted into the atmosphere.”

So what is the range of substances which could find their way into the air around Opole once the waste-incinerating plant at the Opole Cement Plant begins operating?

According to the laws of chemistry, at temperatures of 400-1600 degrees Celsius the polyatomic organic molecules undergo disintegration. Next, as they are being cooled during their passage through the incinerator stack, they recombine to form new compounds which are often even more toxic than the original ones. If, for example, there are chlorine compounds among the substances traveling along the stack, they give rise to extremely harmful dioxins and furans. Furthermore, combustion of liquid and solid substances produces ashes (since matter does not disappear!). If the waste materials contain metals, the high temperatures present at combustion facilitate the formation of a variety of oxides and alloys. These are generally more toxic than the parent substances.

According to studies conducted by Greenpeace, nowhere in the world have researchers and experimenters been able to achieve 100-percent efficiency of waste removal processes. Despite the use of all kinds of filtering apparatus, the smoke produced in the incineration process carries particles of chloroform, phenols, dioxins, tetrachloroethane, polychlorides, as well as such heavy metals as lithium, arsenic, and chromium, which are rendered even more toxic subsequent to combustion! Apart from these, there are also the "regular" combustion products such as, for instance, carbon monoxide. The most dangerous compounds which form in waste-incinerating plants are organic molecules combined with halogens, such as TCDD dioxin, which is 75 times more toxic than potassium cyanide. TCDD and its derivatives cause kidney and liver damage, destroy the immune system, and contribute to the development of skin cancers and infertility. They cannot be eliminated from the system, and their concentrations build up in the adipose tissue.

In 1978, the chemical concern ReChem constructed and opened a new waste-incinerating plant in Ireland. It was situated at a distance of less than 2 km from a cattle breeding farm owned by John Hanrahan. Over a seven-year period Hanrahan lost 220 cows, all of which were diagnosed to have died of "unknown causes. Ultimately, however, the postmortem investigation of the animals' carcasses revealed the presence of dioxins in their tissues. The Irish High Court ruled in the farmer's favor.

How can the residents of Opole and the neighboring area be certain that the Odra Cement Plant—which is situated virtually in the middle of the city—will take sufficient care to select the waste designed for burning in its incinerating station so that only those materials are dispatched to the furnace which contain no trace of the chlorine compounds responsible for the formation of dioxins?

Opole Power Station To Improve Ecological Credentials

MM2701095495 *Opole NOWA TRYBUNA OPOLSKA*
in Polish 20 Jan 95 pp 1-2

[Report signed "JASZ": "Curbing the Sulfur: Another Power Unit at Opole Power Station Placed Under Ecological Contract"]

[FBIS Translated Text] The construction of a state-of-the-art waste gas sulfur reduction system at the Opole Power Station will involve the expense of 460 million German marks [DM]. The Polish Government has granted credit guarantees for this capital investment project, while the German consortium Kloeckner SHL, a firm which boasts the best credentials in its field in Europe, will supply the technology and the equipment.

The agreement to supply—in successive stages—the aforementioned environmental protection systems for each of the six power units at the Opole Power Station was signed four years ago. In September 1996 a system of wet sulfur reduction of waste gases will be installed and put into operation at the First Power Unit. In December 1996 and April 1997 the same operation will be repeated for the next two power units. The fourth unit should be fitted with the same system four months after that.

Yesterday a so-called Addendum Document, devised to "activate" the section of the contract referring to the fourth power unit, was signed at the Opole Power Station. It was endorsed for the Kloeckner consortium by Mathias Mitscherlich and Wolfgang Brueck, while the investor was represented by Chairman Jozef Pekala and his deputy Jozef Szweda. Also present was, among others, Opole Voivoda Ryszard Zembaczynski, who reminded those present that without these installations, which ensure that environmental protection measures are implemented, the Opole Power Station at Brzezie would find it very difficult to secure a license for continued operation. The installation of the systems designed to reduce the emission of sulfur compounds to the atmosphere will cost DM42.5 million.

At present the Opole Power Station applies an improvised, inferior method of removing sulfur compounds from waste gases using the so-called dry sulfur reduction process. Its efficiency rating is poor: at best 35 percent, and even that result is conditional on the use of the best-quality, low-sulfur, and therefore most expensive coal fuel. The technology offered by Kloeckner has several advantages. On the one hand, it increases the efficiency index of the sulfur reduction process to 92 percent and, on the other, permits the use of cheaper and lower quality fuels. Consequently, it is of vital importance for the lowering of the production costs of the electricity sold by the power station. Be that as it may, the costs of the electricity produced by the ecologically safe method will still be higher. Even today the production of one megawatt-hour costs some 12-15 percent more at Brzezie than at power stations which do not resort to the intensive method of waste gas sulfur reduction.

ROMANIA

Chernobyl-Caused Congenital Malformation Cases Reported

AU2001102795 Bucharest ROMANIA LIBERA
in Romanian 19 Jan 95 p 1

[“Note” by Lucian Bitai: “Covasna, the Effects of Chernobyl: Siamese Twins With Multiple Malformations”]

[FBIS Translated Text] In 1994, in Covasna County, the number of deaths caused by congenital malformations of children under one year of age doubled compared to 1993. Dr. Vasile Furcovici of the Covasna County Hospital in the town of Sfantu Gheorghe informed us. Here is a recent, totally uncommon case: A pair a Siamese twins were born with one of them presenting signs of hypotrophy. In other

words, their bodies were united at the front of their chests and they shared legs. The head of one of the twins was no larger than a walnut (which is probably the consequence of the Chernobyl nuclear accident, although several years have passed since then). The Siamese twins lived for only five days. The case is currently being investigated by the Juridical Medical Laboratories.

Covasna County, despite the fact that it is one of the counties with the lowest infant mortality in the country, is facing a constant, year-by-year increase in child mortality (20 out of every 1,000 babies born alive in 1994, compared to 16.5 out of every 1,000 babies in 1993). Congenital malformations—the number of such cases has doubled over the past year—have become the predominant cause of infant mortality phenomenon.

REGIONAL AFFAIRS

Latin American Nations Discuss Environmental Guidelines

PA2801050895 Madrid EFE in Spanish
0659 GMT 25 Jan 95

[FBIS Translated Text] Mexico City, 25 Jan (EFE)—According to one of the conclusions of the meeting held by the environment ministers of the region, those products manufactured in the next few years in Latin America will have to be subject to strict environmental controls.

Following the meeting, which was held in Mexico City 23-24 January, it was also said that most Latin American exporting sectors "are already facing the dilemma of protecting the environment or losing competitiveness."

Chilean Environment Minister Genaro Arriagada last night closed the first meeting held by the Interregional Committee of Latin American Environment Ministers [Comite Interseccional de los Ministros del Medio Ambiente de America Latina], which is a preview to the meeting to be held later this year in Havana.

The ministers of Argentina, Antigua and Barbuda, Brazil, Costa Rica, Cuba, Chile, Guatemala, Venezuela, and Mexico attended this meeting and analyzed the environmental problems that all countries are facing and the measures needed to solve them.

The working documents reflect the concern about the delay in the policies of Latin American governments regarding international trade and the environment.

The current situation "is characterized by environmental demands that are becoming more significant as times goes by." The participants warned that environmental issues are a "footnote in most of the economic strategies the Latin American countries have devised." They also pointed out that the products manufactured by each country will have to be subject to very strong environmental standards over the next few years.

Experts underscored the need to closely follow the environmental trends in the most developed nations, which continue to be the main destination for Latin American exports. They maintained that the absence of environmental issues from public debate in the countries of the region is due to their complexity and "lack of conformity," and not because of overly simplistic models or incorrect ideas.

"People think that environmental concerns could be incompatible with economic liberalization, that environmental protection and profitability are incompatible, and that improving the environment means increasing costs or reducing competitiveness," the experts assessed.

Representatives from Haiti and Jamaica and such organizations as the UNDP [United Nations Development Program], the ECLA [Economic Commission for Latin America], and the Amazonian Cooperation Pact attended the meeting as observers.

The ministers explained that most of the environmental problems Latin American countries are currently facing are the result of an inadequate and irrational use of their natural resources.

The lack of effective instruments to generate incentives and sanctions that would prompt the adequate use and the protection of the environment was another issue discussed at the meeting.

The meeting allowed a sharing of experiences with other countries and the UNDP.

In addition, those attending the meeting decided to evaluate the global environmental situation, to place this information at the disposal of the public, and to have the governments contact the private sectors to ensure that together they will be able to find solutions to environmental problems.

Southern Cone Environmental Issues

PY2401154795

[FBIS Editorial Report] The following is a compilation of reports on environmental issues monitored through 11 January.

Bolivia

A Bolivian Environment and Development Forum study states that Bolivia loses between 100,000 and 200,000 square kilometers of tropical forests per year. The study notes that the main causes of forest depredation are the clearing of lands for cultivation and pasture, woodcutting for commercial purpose, mining and energy projects, and construction of infrastructure. It adds that before the industrial era Bolivian subtropical forests covered double their current area, and that 70 percent of the deforestation has occurred in the past 40 years. It notes that there is alarming deforestation in regions bordering Brazil, which are constantly being violated by Brazilian citizens in complicity with Bolivians. (Santa Cruz EL MUNDO in Spanish 9 Jan 95 p A18)

Peruvians trafficking in vicuna wool and hides have killed over 1,500 vicunas in the period ranging from 1989 to 1994 in Ulla Ulla National Park. This national park, which extends over 1,000 square kilometers, is located in Franz Tamayo, Bautista Saavedra, and Camacho Provinces in La Paz Department. Reports state that Peruvian hunters who enter the park secretly are indiscriminately killing the vicunas. Ulla Ulla National Park was declared a national reserve to protect approximately its 12,000 vicunas, which are in danger of extinction, as well as altiplano fauna and flora. Peruvian traffickers have reportedly eliminated 20 percent of the vicunas in the past five years. (La Paz PRESENCIA in Spanish 10 Dec 94 p 9)

Hugo Hurtado, chief of the Wildlife Department of the Forest Development Center, has reported that approximately 300 species of Bolivian fauna are in danger of extinction, due mainly to over exploitation, irrational use of land for obtaining food, international trade, and

destruction of natural habitat. He said that animals in danger of extinction include vicuna, jaguar, condor, caiman, chinchilla, and swamp doe, among many others. (La Paz HOY in Spanish 11 Jan 95 National Section p 3)

Brazil

According to the Sao Paulo State Department for the Protection of Natural Resources, deforestation increased by 75 percent in Sao Paulo State during the Luiz Antonio Fleury administration. Between 1991 and September 1994 the Sao Paulo State government authorized the deforestation of 86,821 hectares of forest at various stages of growth, while the previous administration had authorized the deforestation of a total of 49,575 hectares. The annual average deforestation authorized by the current administration increased by 21,705 hectares, reaching almost double the annual average allowed by the previous administration. Authorized deforestation increased by 86 percent in the past two years under Environmental Secretary Edis Milare's administration. (Sao Paulo AGENCIA ESTADO in Portuguese 2155 GMT 2 Jan 95)

Peru

On 31 December Tigre District Mayor Pedro Grandes Aguilar reported that over 100 barrels of a highly corrosive oil byproduct spilled into the Tigre River as a result of a rupture in an Occidental Petroleum Company pipeline. The accident caused serious gastrointestinal infections to five children and other residents in the Loreto Province region. He stated that this spill could kill thousands of species of fauna and flora and cause irreversible ecological damage. (Lima LA REPUBLICA in Spanish 1 Jan 95 p 18)

ARGENTINA

Nuclear Waste Dumping Suspected in Catamarca Province

PY2601120395 Buenos Aires TELAM in Spanish
0048 GMT 26 Jan 95

[FBIS Translated Text] Catamarca, 25 Jan (TELAM)—Victor Castillo, the health under secretary in Catamarca Province, will request international organizations to investigate whether nuclear waste has been dumped in the western region of the province.

In light of charges made by Amado Quintar, mayor of the municipality of Tinogasta, which is located 250 km due west of the city of Catamarca, Castillo said: "This is a very delicate question that requires the intervention of experts."

Quintar had cautioned that the fact that this area has a high incidence of cancer and leukemia cases made him "suspect that there is a nuclear rubbish dump there."

He also reported that sealed metal spheres, which he thought could contain radioactive waste, had been found near the San Francisco Pass (on the border with Chile).

BAHAMAS

Government Adds Voice To Stop Nuclear Shipment

FL0302152395 Nassau Bahamas Radio Network
in English 1230 GMT 3 Feb 95

[FBIS Transcribed Text] Governments of nations around the region and environmental watchdog groups are monitoring closely the proposal to ship nuclear waste from France to Japan by way of the Caribbean. The Bahamas has expressed its concern to the Japanese officials as well. Jerome Sawyer reports that the ship load of nuclear waste is expected to make the trip sometime this month.

Sawyer: When one thinks of nuclear weapons, it is not something that the Bahamas has a problem with. We don't generate any kind of nuclear weapons and we don't have nuclear materials. Not since 1992 has the government even had to concern itself with the possibility of nuclear waste coming to our waters. But thanks to an alert from Greenpeace International, diplomatic efforts are now underway to stop a shipment of nuclear waste that is going from France to Japan via the Caribbean.

Unidentified speaker: There is a possibility one of the routes that the materials could come from is down through the Caribbean and starting with the Bahamas, going through the Panama Canal out into the Pacific and then going to Japan. If it does go, then obviously there is a direct conflict as to the Bahamas islands, to the beaches and the marineways.

Sawyer: Dr. Donald Cooper of the Department of Environmental Health in an interview with ZNS News on Thursday, said that for security reasons a number of routes have been chosen. But if the nuclear materials do pass through the Bahamas, there will be cause for some concern. Doctor, what would be the possible effects to the environment if a mishap like this occurs with the nuclear material?

Cooper: Well, there could be heavy impact and the [words indistinct] would have to not only destroy the ship but also destroy the casings and the casings are designed to withstand explosions on board the ship, sinkings, acts of God, war, whatever. Now, if this material, for some reason, were to come out of the casings—again, it would impact on the local area, the marine life, the (?unique) systems, and that area would obviously be unsafe for use by humans.

Sawyer: If the cargo does go down in the deep water channel, then the impact in the area will be minimal. However, the government is not taking any chances.

Unidentified speaker: In the past, the Bahamas has not allowed such shipments to come through its waters. This has been through a concerted effort with the entire Caribbean. I add, the intention is not to stop the ship, but to simply stop the Caribbean [words indistinct].

Sawyer: In which context, the Bahamian government has joined with other Caribbean islands to provide a bloc voice at the United Nations level.

Unidentified speaker: Although the possibility of an environmental disaster does exist, officials at the Department of Environmental Health say that there is really no cause for alarm.

BARBADOS

Ministry of Health Says Landfill is Not a Danger

*FL1401183395 Bridgetown CANA in English
1645 GMT 14 Jan 95*

[FBIS Transcribed Text] Bridgetown, Barbados, Jan. 14, CANA—The Barbados government has moved to quash rumours about possible contamination of the island's ground water supplies by garbage. The Ministry of Health said tests carried out by the Barbados Water Authority and the Environmental Engineering Division of the ministry showed no contamination by leachate, the liquid which seeps out of garbage. It was reacting to the Barbados Environmental Association's complaint that two west coast underground water catchments could be contaminated by the seepage from rotting garbage at a huge landfill—called "Mount Stinkeroo" by many—which the government has been levelling.

The Government Information Service [GIS] quoted the Ministry of Health as saying that a modern leachate collection system, the first in the Caribbean, is in operation at the Mangrove landfill, a controversial dump being closed in June after a wave of protest by people living nearby. "This system features the lining of the landfill with an impermeable clay bed with perforated pipes covered with small stones, tyres and sand for further filtration," the service said. "This leachate that filters into the pipes is collected in a 5,000-gallon tank which is drawn off weekly and reintroduced into the landfill to help aid decomposition."

The ministry said results of all tests have shown levels well below the acceptable level stipulated by the World Health Organisation (WHO) for drinking water, GIS reported. "The Ministry maintains that the magnitude of the constituents is much lower than would come from a landfill and is in fact consistent with material coming from regular soil and underground coral.

"Tests have also been carried out for metals such as copper, zinc, lead, chromium and cadmium and results show them well below those stipulated by the WHO," it added. These levels were said to be consistent with the material that makes up the aquifers and other substances which exist there. Samples collected independently by the firm Delcan for the Coastal Conservation Unit also show low levels, which are not consistent with leachate contamination, the information agency reported. "The Ministry sincerely hopes that this information will once and for all allay the fears of those concerned about water contamination as these tests will now continue on a weekly basis," it added.

Government Faces 'Stiff Opposition' on Landfill Decision

*FL0202184395 Bridgetown CANA in English
1805 GMT 2 Feb 95*

[FBIS Transcribed Text] Bridgetown, Barbados, Feb 2, CANA - Prime Minister Owen Arthur's five-month-old administration is facing the prospect of stiff opposition, including from within its own ranks, if a decision is taken to locate the new national dump in the pristine eastern parish of St Andrew.

Rapped by some constituents for his silence on the issue, parliamentary representative for St Andrew, Public Works Minister George Payne, made clear he backs "100 per cent" efforts by residents to keep the landfill out of their scenic rural district.

Payne, however, was quoted in Thursday's DAILY NATION as saying he was not aware a decision had been taken on the new site. Besides Greenland, two other sites are under consideration.

Speculation that it would be Greenland, St Andrew, was fuelled by a recent visit by some Cabinet ministers.

The current national dump at Mangrove Pond in the central parish of St Thomas, is nearly full and, as a result of what the Arthur administration says is bad management, has developed into a health hazard, prompting a recent massive clean-up in response to complaints from nearby residents that the stench was making life unbearable.

Health Minister Liz Thompson has promised that Mangrove Pond, nicknamed Mount Stinkeroo, will be closed by June.

Cabinet was expected Thursday to discuss the new landfill site and a decision is expected to be announced in a few days.

Earlier this week, residents of communities close to Greenland held a meeting and a spokeswoman declared afterwards that if the dump comes their way, they will stage protests including marching to Government House, residence of the governor-general, or Parliament.

"I appreciate that the dump has to be placed somewhere but I support the people of St Andrew 100 per cent in their opposition to the siting of the dump at Greenland in these circumstances," Payne was quoted by the Daily Nation as saying.

He added: "It is environmental madness to place the dump in the middle of a national park. Our (the Barbados Labour Party's) manifesto addressed the issue of tapping the surface water in the Scotland District and the experts have reported that if the dump is placed in Greenland, obviously there could be some contamination of our water supply."

Environmentalist Warns Islanders About Waste Management

FL3001025295 Bridgetown CANA in English
1724 GMT 29 Jan 95

[FBIS Transcribed Text] Bridgetown, Barbados, Jan 29, CANA—A leading Caribbean conservationist on Sunday warned Barbadian consumers they must "immediately" buckle down to the task of managing the waste they produce. Executive Director of the Caribbean Conservation Association (CCA), Calvin Howell, said the stark reality facing this 166-square-mile country was that each household must take steps to reduce, re-use, and recycle garbage.

"There is really no time to waste," warned Howell, in a newspaper commentary on solid waste management. "The situation in Barbados has become so acute that it demands immediate and concerted planning and decisive action," he added. Howell's comments came as government prepares to announce later this week the new central site for landfilling operations. The four-month-old government, under immense pressure from nearby residents to close its Mangrove, St. Thomas dump, has launched a Bds \$1.3 million (1 Bds dollar = 50 U.S. cents) clean-up campaign and set a June 30th deadline for closure of the near decade-old operation. The Mangrove dump, or "Mount Stinkeroo" as it is called, has developed into a giant pile of usually smothering, foul-smelling garbage, which tourism promoters, politicians, and others here say is a threat to the vital tourism industry.

"The truth is that, regardless of which alternative dump site is selected, and in spite of what suggestions are offered with respect to the proper management of our landfills, stark reality dictates that countries like ours with limited land space simply cannot afford the luxury of wasteful consumption patterns without accepting the risk of our citizens ultimately having to wallow in their own waste at some point in the future," Howell wrote in the Sunday ADVOCATE.

The CCA official joined in calls from other conservationists and environmentalists here in particular for Barbados, which currently disposes about 500 tonnes of garbage daily, to seriously address waste management. Howell continued: "From an environmental management perspective, it would seem that the only sensible way to address waste management (across the region) is to institute a programme immediately, which would seek to reduce waste at its source - i.e at the level of households, hotels, factories, or other generating sources. This in essence would necessitate convincing people that they should reduce their consumption, change their habits about re-using items, and recycle products, thereby cutting down drastically what needs to be disposed of."

"Such campaign must start with consumers, to sensitise them as to how and why they should make a conscious effort to reduce unnecessary waste. For example, they should be made aware that they should pay close attention to the type and amount of packaging; they should be

encouraged to buy in bulk when convenient (this is usually more economical). They should get involved in backyard composting of biodegradable kitchen waste, sort garbage at source, and take responsibility for assuming a portion of the high cost associated with waste disposal," the CCA executive director added.

"Only when the average householder begins to understand that there is a cost attached to everything and that nothing is really free, will he/she assume greater responsibility for waste reduction," Howell said.

BOLIVIA

Ecological Disasters in Various Provinces Summarized

Drought Statistics

95WN00844 La Paz HOY in Spanish 28 Dec 94 p 4

[FBIS Translated Text] A prolonged drought, comparable only to the dry spell recorded 10 years ago in the Department of Potosi, has been affecting five departments in Bolivia for the past four months. In 1994 this drought left at least 40,000 farm families unable to raise a crop.

General Jorge Castellon Prudencio, national director of the Office of Civil Defense, told HOY that the 1994 drought, in terms of its intensity, was as bad as the drought 10 years ago, when the center of the tragedy was the Department of Potosi.

Other data indicate that the drought destroyed 70 percent of the agricultural production of the Department of Cochabamba, while the Departments of Tarija, Chuquisaca, and Potosi continue to ration water, which has become a luxury item.

Gen Castellon said: "We carefully calculated the number of families affected by the drought. For example, it has been determined that the drought of 1994 has affected 10,000 families in the Department of Cochabamba, 11,650 families in Santa Cruz, 4,800 families in Potosi, 4,850 families in Tarija, and 6,950 families in Chuquisaca, for a total of 38,250 families."

He said: "If we consider that each family has an average of five members, we concluded that we had to arrange to provide support for about 200,000 people. This support was provided in part by international contributions of about \$600,000 worth of food."

The drought, which began in June during the winter [Southern Hemisphere] of 1994, continued until the first few days of December 1994, especially in areas of the Departments of Cochabamba and Potosi, while sporadic rains eased the problem in the other three departments affected.

Help Which Arrived

Gen Castellon said that the Office of Civil Defense, in its annual operational plans, considered different phases in the operation to help the departments affected. He said: "The first step was prevention. You have to have a presence in the areas normally affected by this kind of

phenomenon before problems arise. The fact was that well in advance and in the first phase of relief and preparation for cases of drought or floods, we brought food to the Departments of Oruro, Potosi, Camiri, and El Gran Chaco in September 1994."

At the same time, before areas of national emergency were declared in the five departments, the Office of Civil Defense established its presence in those regions with a program of delivering tools for use in preventive programs.

In addition to delivering the tools, he said, was the promulgation of Supreme Decree 23867 of 22 September. This provided the five departments with deliveries of food. Another program covered the transportation of agricultural inputs and requirements for the towns and cities involved.

Gen Castellon said: "This kind of support would not have been possible if the Office of Civil Defense had not received help from international organizations and friendly foreign countries. During the last drought the government of the United States, through USAID [U. S. Agency for International Development] and volunteer agencies which operate under it, has given us 694 tons of different foods for these five departments in Bolivia."

In monetary terms this food aid consisted of wheat flour, corn flour, bulgar wheat [a mixture of soya and corn flour], lentils, salt, rice, dried beans, powdered milk, sugar, and edible oil, with a total value of \$600,000.

He added that all of this food was distributed in the Departments of Cochabamba, which received 200 tons; Santa Cruz, 175 tons; Potosi, 96 tons; Tarija, 85 tons; and Chuquisaca, 138 tons.

Tools were also distributed in the following quantities: the Department of Cochabamba, 4,410 tools; Tarija, 3,360; and Santa Cruz, 6,930, for a total of 26,775 tools which had been donated.

The tools distributed included: picks, axes, machetes, shovels, reinforcing bars, and wheelbarrows.

Emergency Area

Despite the intensity of the drought, the government waited before declaring the five departments emergency areas. However, under pressure from farmers and civic leaders, on 22 September the government issued an appropriate supreme decree, a useful instrument for channeling the increased support from international organizations.

Gen Castellon explained: "An area is considered an emergency zone when between 50 and 75 percent of the families in a given region have been affected by a disaster. Places are proclaimed to be disaster areas when there are indications of tragedy."

He said: "The Office of Civil Defense tries to reduce the impact of disasters caused by nature or by man, in accordance with the philosophy contained in a statement of the United Nations. Under the slogan, 'A safer world in the

21st century,' the UN decided that the decade from 1991 to 2000 shall be called a special period for the reduction of natural disasters."

Nevertheless, to achieve that objective, it is first necessary to create in Bolivia a national culture in all social strata to work to prevent disaster. He said: "We must make the people understand that 'Civil Defense' means the determined participation of everyone."

Erosion in Tarija

95WN0084B *La Paz HOY* in Spanish 28 Dec 94 p 4

[FBIS Translated Text] Tarija, HOY—Erosion has been added to the many problems facing the Department of Tarija which, it is hoped, will be resolved in the near future. Erosion is a disaster which affects the useful life of the soil. In the central valley of Tarija erosion has been able to spread, to the extent that, it is stated, about 600 ha of land are lost annually by the different factors which cause it.

The excessive felling of trees and the clearing of bushes, poor management of soil, the burning of vegetation, the high fragility of the soil, and overgrazing are indicated as the sources of erosion, among other causes. As is known, erosion has already affected more than 135,000 ha of soil throughout the central valley, reducing to a considerable extent the land suited to agriculture.

Although substantial efforts have been made so far to control erosion, the "Executive Program for the Rehabilitation of Land" has rather clearly determined that, despite the fact that we have the technical resources, we lack the economic resources to deal with the problem. By carrying out an overall program, based on planning, we can formulate strategies to be implemented urgently.

In effect, the production of seedlings, planting forests, enclosing forest areas, conservation works such as the construction of earth dams, containment dikes and other public works, and the social component in which farmer communities play an important role have been identified as elements of remedial action which must be supported with economic resources. Their financing should be provided in the shortest time possible. If not, future generations will judge those who did not wish to understand the immensity of this problem.

Deforestation in Pando, Beni

95WN0084C *La Paz HOY* in Spanish 28 Dec 94 pp 4-5

[FBIS Translated Text] However, the most catastrophic destruction of forests did not only take place in the Department of Santa Cruz but, in general, in the whole eastern part of Bolivia, the area North of La Paz, and in the valley of the Department of Tarija.

On more than one occasion Monsignor Luis Casey, who has undertaken difficult, social work in the Department of Pando, has denounced peaceful invasions and the destruction of forests in this department.

Just as in Trinidad, the Center of Forest Development [CDF] warned about the seriousness of the destruction. It even denounced the fact that various local government authorities, members of the military garrisons in the area, and even people from the National Highway Service were involved in the destruction, together with the lumber companies in the area.

There are 11 lumber companies operating in the Department of Pando. The CDF has reported that the timber-cutting concessions of the majority of these companies expire at the end of 1994.

The invasion of the forests has been peaceful, but it has disturbed Monsignor Casey, who has also denounced repeatedly the various invasions of Bolivia by Brazilian citizens, who have moved slowly into Bolivian territory and have settled down to exploit our land and natural resources.

The matter of the "Brazilians" was also another unusual subject in 1994, when government authorities of the Department of Beni denounced the fact that many people have identity documents and dual nationality from both countries. The evidence of this is that all of the so-called "Brazilians" were born in Bolivia.

The matter reached the point that when general elections were held in Brazil in September 1994, more than 5,000 Bolivians crossed the border to vote. Radio stations reported continuously on the progress of the elections campaign and the early returns of the elections. Everything was reported as if it had taken place in Bolivia.

Both the Departments of Beni, as well as Pando, have asked government authorities to review the concessions made to lumber companies and to follow new policies in 1995 for the conservation of the immense natural resources in both of these departments.

Santa Cruz Deforestation, Pollution

95WN0084D *La Paz HOY* in Spanish 28 Dec 94 p 5

[Article by Jose Manuel Pando: "Ecological Tragedy in Santa Cruz"; first paragraph is editorial introduction]

[FBIS Translated Text] Santa Cruz, HOY—Preliminary data reveal that during 1994 at least 100,000 ha of land were lost through deforestation, while about 1,000 tons of fish died from the contamination of the rivers.

Uncontrolled deforestation, the indiscriminate hunting of animals, and the death of fish from toxic residues dumped into the rivers were negative aspects of developments in 1994 in the Department of Santa Cruz.

Organizations for the defense of the ecology of Bolivia, such as the Ecological Association of Eastern Bolivia [ASEO], the Foundation of Friends of Nature [FAN], and the Commission for the Defense of the Environment, among other groups, have continuously denounced a series of actions taken against the fauna and flora of Bolivia.

However, few efforts have been made by government authorities to prevent the merciless destruction of natural resources.

Terrible Deforestation

It appears that lumber companies and farmers are in competition to see who can cut down more trees. Together, they are making about 100,000 ha of forests disappear every year.

The lumber companies have practically wiped out valuable forests of mara wood [an indigenous species of tree in Bolivia]. All existing mara trees have been cut down. Not only has mara wood been turned into furniture for Bolivian homes but this wood from Bolivia can also be seen in Europe and the United States, where it has been used for furniture and floor coverings in offices and homes.

Without any reforestation program under way lumber companies, after wiping out existing stocks of mara, have turned their eyes on every tree which they find, including those which are not useful for timber, such as the ochoo tree [indigenous Bolivian tree].

In their desire to cut down and transport the wood to market, these companies, in addition to destroying the forests, are contaminating the water of the rivers, since it is known that the resin of the Ochoo tree acts like a drug on fish.

The farmers have not been far behind the lumber companies. Hundreds of migrants from the interior of Bolivia have joined farmers of the region in destroying the forests. For this purpose they not only cut down trees but burn dry timber to prepare their deforested land to plant seeds, thereby beginning the slow destruction of the fertile soil.

Murderous Chains

In 1994 a number of farmers and cattle ranchers, some of them of Brazilian origin, began "chaining" the forests, using for this purpose two caterpillar tractors and a heavy chain, which is dragged by the two vehicles. When the two tractors go through a forest, they drag down whatever vegetation they encounter, without regard to the quality of the wood or the species of forest plant destroyed. In this practice not even the animals are spared. When their environment is destroyed and when no trees are left standing, the animals must flee to other areas in search of refuge. To eliminate the animals, they are hunted down and exterminated in a savage way.

A Brazilian-Bolivian company, called P and P [expansion not given], was found, "chaining" the forests in the area of Pozo del Tigre. The Center of Forest Development confiscated the machinery, but those responsible for this activity were not put in jail.

In the same way hundreds of Brazilian investors have "chained" forests in the Chiquita area, causing the region to turn into a desert, in effect changing the seasons and thereby causing droughts and the proliferation of plagues of rodents which are eating up the crops. Deforestation has

destroyed the ecological balance with the flight from the area of animals of the cat family, which had kept the rodent population in balance.

Indiscriminate Hunting

Large numbers of animals in the Santa Cruz area die each year because they have been shot by clandestine hunters.

Many of the hunters kill the animals just for their hides. They are not concerned about the age of the animal or whether it is carrying or nursing its young.

Shipments of 10,000, 5,000, and 1,000 animal hides, particularly lizards and alligators, mountain pigs, elk, tigers, mountain lions, and other species have been seized from the hands of the smugglers of hides who are ultimately not put in prison and whose identity is not known.

Bolivian animal hides are taken out of the country through Paraguay and sold for a good price in foreign markets.

Mortality of Fish

On three occasions in 1994 terrible fish kills took place in the rivers of the Department of Santa Cruz. Analyses made in laboratories in Germany, Spain, and Chile reveal that the fish died because of a lack of oxygen in the water, caused by chemical and toxic residues dumped by industries, particularly sugar factories.

Government authorities undertook criminal action against the people who destroyed the fish, but nothing further has developed, and there is no hope that those responsible for this ecological tragedy will be punished by the law.

Furthermore, the Service for Channeling the Water and for the Regulation of the Pirai River [SEARPI] and the Ecological Association of Eastern Bolivia [ASEO] have repeatedly denounced the fact that sugar mills continue to dump sewage into the rivers.

Estimates which have been made indicate that in the three fish kills which have taken place nearly 1,000 tons of Pacu, Surubi, Bagre, Pira, Paleta, Blanquillo, Pacupaba, Boya, Tacha, Dorado, and Raya fish [fish varieties indigenous to Bolivia] were lost.

Sale of Land

In addition to this ecological tragedy there is also the indiscriminate sale of land to foreigners in the Chiquitos area, especially Brazilians. It is estimated that at least 800,000 ha of land were sold to foreigners in 1994. The majority of this land is located within the national security zone along the border.

Foreigners come with machinery and immediately cut down large areas to plant soybeans in particular. Advertisements by the Bolibras Company in Brazil and carried several times in FOLHA, a newspaper published in Sao Paulo, seems to have awakened the interest of Brazilians who have no land suitable for this crop, after many years of deforestation using the "chain" system, which has caused large areas of land to turn into deserts.

The foreigners are attracted by the fertility of the Bolivian land and by the low prices asked for such land in our country.

Aldo Pena, a social commentator and producer of the nationally distributed, televised program, "Viajero," states that he is recording all of the flora and fauna that he finds on television and other cameras because, "Finally, we will be left with nothing. We have to keep pictures and photographs so that future generations will know what we had and what we lost."

No doubt this ecological tragedy, because of its large scale and the serious harm caused, is the most negative aspect of what happened in the Department of Santa Cruz in 1994.

CHILE

Arriagada on NAFTA Environmental Issues

95WN0073A Santiago *EL MERCURIO* in Spanish
16 Dec 94 p C2

[FBIS Translated Text] Regarding the environmental cooperation accord in the future NAFTA negotiations with the United States, Canada, and Mexico, the Chilean Government intends not to opt for harmonization policies—the application of strictly similar regulations in each of the member countries—but instead for equivalency—guaranteeing a satisfactory level of environmental protection in relation to the standards the other partners apply.

This was announced by Minister-Secretary General of the Presidency Genaro Arriagada in a breakfast meeting with members of the Chilean-North American Chamber of Commerce.

Arriagada added: "Regarding the equivalency policy, the government will express its intention to support an environmental policy, create an effective public agency, Conama [National Environmental Commission], to deal with these matters, and issue regulations enabling an environmental protection policy to be created."

He expressed his hope that the environmental issue "will not be the major focus or even a problem" in the future negotiations, which he called "difficult, but not too difficult."

Negotiating Team

Arriagada reported that the NAFTA negotiations will be conducted by a special panel of four ministers led by Finance Minister Eduardo Aninat. He said this team was chosen because with "the variety of negotiations in which Chile is engaging, we need to have a general overall vision in the negotiations."

The three other panel members are the ministers of the economy, Alvaro Garcia; foreign relations, Jose Miguel Insulza; and Arriagada.

He indicated that the panel will first see "how we are going to conduct the negotiations."

Arriagada said that, along with Minister Aninat, "a sizeable group of people will work on different related committees." He said they will focus on "six major areas": market access and rules of origin; investment in services and intellectual property; labor issues; government purchases, technical standards, and competition policy; conflict resolution, safeguards, and antidumping; and finally, the environment.

Describing what Chile is doing on environmental issues in terms of equivalency standards in comparison to the United States, Canada, and Mexico, he explained that Conama has been established in Chile's 13 regions. He added that the basic regulations contained in the framework law setting forth the General Guidelines on the Environment promulgated this year are being drawn up in order to determine an environmental policy.

Arriagada reported that a final draft of the regulation setting equivalency standards will be issued before 20 December 1994. He indicated that they need to be very careful in this area, as "excessive regulations" could cause certain activities to collapse and send an extraordinarily negative signal to the private sector.

He added that the regulation creating the SEIA [Environmental Impact Evaluation System] will probably be issued within about 90 days by the task force drafting it: representatives of government agencies, private industry, and academic institutions.

He said this regulation requires great care, for if it is poorly handled it may have a very negative impact on the economy.

In the future there could be 200 or more environmental impact studies a year for projects costing not millions but billions of dollars, Arriagada revealed. He warned that Chile will have to comply with requirements arising from this regulation without creating a huge bureaucracy.

He added that "in the next few days we will be able to issue the regulation establishing the declaration of a saturated zone and creating pollution remediation plans."

"Green" Markets

Arriagada said that NAFTA stipulates that no member country may lower its environmental standards in order to attract investment.

He said that the treaty also tries to create "green" markets with exporters prepared to produce goods and services meeting the international market's strict quality standards, so he said that it may be inferred that "the relocation of investment to take advantage of more lax environmental regulations and standards will have comparatively little importance in relation to the enormous impact of having to comply with strict quality standards for goods and services as a condition for export."

In explaining why Chile prefers the concept of equivalency to harmonization of environmental standards, he said that the countries' environmental conditions differ; in addition, imposing excessively expensive standards may produce a

marginal improvement in the environment at the cost of a decline in resources urgently needed for development.

Arriagada maintained that NAFTA favors equivalency and not harmonization, as "it does not propose common environmental regulations, nor does it subject the internal environmental legislation and regulations of each country to negotiation." He added that the treaty members—the United States, Canada, and Mexico—did not set common air or water quality standards, nor do they have common regulations for handling solid wastes or emissions of industrial pollutants.

He indicated that there have been "too much speculation and too many unfounded fears" about the supposed impact of increased environmental protection on trade, as only 18 of the 180 international agreements on the environment contain trade measures.

He said: "We must be cautious in these negotiations. As the minister of foreign relations put it very well with a soccer analogy, we must never confuse the starting kick with the winning goal. Consequently, we are now beginning negotiations that will be difficult, but not too difficult."

Regional Environmental Commission Formed

95WN0086A Santiago *EL MERCURIO* in Spanish
20 Jan 95 p C7

[FBIS Translated Text] The specialized unit of Sosofa [Industrial Development Association] stated yesterday that the government lacks sufficient human and technical resources to enable it to evaluate and oversee the environmental impact studies that the Basic Environmental Law requires of all the nation's industries.

The Metropolitan [Santiago] Corema (Regional Environmental Commission) was also formed yesterday. Its creation is authorized in Article 81 of the aforementioned law, which takes effect next March.

Anibal Mege, chief of Sosofa's Environmental Department, said yesterday that the law was "quite good." He added, however, that although the law will soon go into full effect, the business community still holds divergent views regarding specific points in the regulations that must be issued in order for the law to be implemented.

Mege maintained, for example, that the environmental impact study is "controversial" in respect to the regulations as they apply to standards and plans, because of the difficulty encountered in developing the proposals that the industrial sector must submit to Conama [National Environmental Commission] concerning these regulations no later than 31 January.

The questions being asked by the business community relate to technical and practical mechanisms such as deciding who will make the final determination as to the standards, the content of the standards, and the environmental permits.

Mege also emphasized that the controversy in the area of regulations relates solely to the manner of resolving the

differences, because there is a consensus with respect to the need for a law regulating man's behavior toward his environment.

He explained that the principal problem in connection with the environmental impact studies is whether the government has the capability it needs in order to accept and evaluate the large number of studies that it will receive after the law goes into effect.

In this connection, he said it is quite likely that because of the insufficiency of personnel, recourse must be had to private companies—properly qualified—to cooperate in reviewing the environmental impact studies.

He also warned that the state does not have sufficient supervisory capability, as expressed in a lack of the personnel, instruments, and budgetary resources needed in order to efficiently investigate those factors or sources of pollution that are daily becoming more prevalent.

Mege said the investment made by the business community in order to attenuate the negative effects of industrial activity on the ecosystem is difficult to determine, inasmuch as it varies in accordance with the needs of the individual enterprises. He hastened to add, however, that the total investment made by the public and private sectors in this area probably exceeds \$840 million.

Corema

Meanwhile, another step was taken yesterday toward establishing the structure prescribed in the Basic Environmental Law with the formation of the Metropolitan Corema.

Article 81 of the law calls for the creation of such commissions to oversee compliance with the standards, especially as they relate to the aforementioned environmental impact studies.

Santiago Mayor Alex Figueroa is the chairman of the Corema, which also consists of the governors, four regional board members, the Conama regional director, and the regional secretaries of the ministries of Public Works, Agriculture, National Resources, Health, Mining, Housing, Transportation, and Planning.

Javier Vergara, former executive secretary of the Special Commission on Environmental Cleanup, was elected unanimously to the post of director general of the Metropolitan Corema.

Angel Flisfisch, undersecretary general of the presidency, said that the creation of the Corema has special importance because "it seeks to bring the management of the environmental problem to the people who are directly affected."

Flisfisch explained that what is involved is not merely a change of name but the consolidation of "an agency that has made great efforts to improve the quality of life of the people of Santiago."

Native Forest Ecology Groups Meet

95WN0079A Santiago *EL MERCURIO* in Spanish
9 Jan 95 p C4

[by Valeria Torres L.]

[FBIS Translated Text] Las Cascadas, X Region—The Defenders of the Chilean Forest described the preliminary draft of the law on the recovery of the forest and forest promotion, now under study in the Ministry of Agriculture, as a change in strategy in the area of protecting the forest native to our country.

The organization, gathered at its first national convention in this resort on the banks of Lake Llanquihue, described the initiative as "more daring" compared to the previous draft bill, which has been awaiting passage in Congress for four years.

The meeting called together for the first time, one year after the group's founding, persons and organizations throughout the country who make up the group's network.

The Defenders of the Chilean Forest is an organization that seeks to publicize the status of the forest and to create civic consciousness over the need to protect it.

One of the subjects addressed in the assembly was the preliminary draft of the Law on Recovery of the Native Forest and Forest Promotion, drafted by the Ministry of Agriculture, which has not yet officially been made public. The bill is still under review by the government, and it is not certain when it will be transmitted to Congress as a replacement for the bill that is now pending there.

In that regard, Diego Garcia, of the group's legal department, said that from a very preliminary reading of the draft, it is clear that it contains a change in strategy, because it emphasizes aspects of protection, without prejudice to norms that continue to be arguable and controversial. He added that the preliminary draft is more daring due to the fact that, as stated in Article 1, its purpose is to stimulate the growth, recovery, and regulation of the native forest, so that it will be able to fulfill its function of protecting the soil, ecosystems, and associated habitats, and eventually provide sustainable forestry production.

Diego Garcia said that the group is preparing a detailed, comparative examination of both texts.

The purpose of the convention, which was attended by more than 50 ecologists from all over Chile and abroad, was to establish goals for the organization's work.

In that connection, Adriana Hoffmann, national coordinator for the group, said that the organization will undertake specific actions in 1995. However, she said that they will continue to file complaints, as in the case of the export of wood chips from the native forest and the auction of the reserve at Llanquihue.

One of the activities they intend to carry out in 1995 is to organize lawyers for the defense of Chilean forests and to explore the best way to use existing laws for their defense.

Garcia said that they are working together toward this goal with lawyers Fernando Dougnac and Valdemar Monsalve by preparing a manual, so that municipalities will be aware of and able to use the means currently provided by law to protect the forests. He added that the manual will also allow citizens who are not specialists in the subject to make better use of available means to preserve the forest.

Adriana Hoffmann said that, for this year, the group is also planning the preparation of a manual for alternative uses of the Chilean forest. They are working on this project together with biologist Flavia Liberona to prepare an index listing all the native species and alternative uses—medicinal, ornamental, or otherwise—for each one.

The national coordinator also said that the organization would be able to carry out projects in 1995, as it had become a legally registered organization a few days ago.

Also participating in the assembly, which was held at Las Cascadas in Region X, was Claudio Donoso, a forestry engineer at the Universidad Austral of Chile and the president of the Forestry Engineers for the Native Forest, who spoke on sustainable management of the forest.

The Defenders of the Chilean Forest, which has local coordinators in Regions VI, VII, VIII, IX, X, and XII, filed numerous complaints during 1994. One involved the firm Golden Spring, on Chiloe Island, by which they succeeded in stopping the firm's activities. They also denounced illegal cutting of araucaria trees near Melipeuco, in Region IX, and illegal cutting of rauli trees in Region X. In addition, the organization managed to collect more than 100,000 signatures in 1994 in a campaign to gather popular support for the conservation and sustainable management of the native forest.

CUBA

Impact of Causeways on Environment Discussed
95WN0066A Havana BOHEMIA in Spanish
25 Nov 94 pp 34-37

[Article by Felix Guerra: "At the End of the Trip"]

[FBIS Translated Text] Sabinal, built in the 1970's and initially lacking bridges, represents prehistory as far as causeways are concerned. It was not a government project. The story goes that it was the dream of an individual. And the first experiment.

The small causeway, less than 2 km long, made it plain that the living body of ecosystems, despite its impressive dimensions and proven vitality, can suddenly become as fragile as glass. Kilometers of flora and fauna succumbed in the face of an ill-conceived dream. The experiment was not worth the cost of the damage done. But drawing the indispensable conclusions is the way to put a price on the experiment and to reverse, to the extent possible, a failed attempt.

Camaguey One

After hours of talking, we felt that the group concerned with ecological matters here was not as well versed in the details of the causeway as was the case in Ciego de Avila and Villa Clara, for example. There were even parts of the causeway that they had not yet seen, mainly because of transportation problems. One could sense the discouragement of those who are apparently at a disadvantage in struggling for their points of view.

After visiting three causeways, it was obvious that the classic confrontation between those who plan and those who build is occurring here and there. Some are struggling to enforce compliance with what has been approved or the law. Others, with everything subject to their will and decisionmaking power, are trying to take short cuts.

In our conversation with the group, which included two oceanographers and one fisheries engineer, its leader, Eduardo Perez Oliva, complained about the recent disappearance of the State Arbitration Board.

"In some cases it provided real support," he said. "It was useful in all of the group's activity. If harm was done, there was compensation. Statements and photographs were taken, and we went to court. But now it no longer exists. There should always be a legal mechanism to combat violations, even though that is not the only solution."

Camaguey Two

I listened to various opinions. Some people felt that building the causeway to Romano Cay straight across the center of Jiguey Bay was not the proper solution: advantage could have been taken of estuaries and peninsulas, a solution that would even have made the stretch of causeway shorter, they argued.

The beach potential here is impressive: 26 km on Santa Lucia, 33 km on Sabinal, and now, in addition, the 21 km on Cruz Cay. For that same reason, others felt that the causeway leading to Cruz Cay was unnecessary for the moment.

Another complaint was that rock was being extracted from Loma del Aji, a natural reserve protected by law. Apparently, the decision to use that rock was made to save travel time, fuel, and tires.

Later we spoke with engineer Bernardo Nieves, who was contingent chief when the Jiguey-Cruz Cay causeway was being built. He feels that although Sabinal is a more solid, better formed, and bigger cay, its waters are shallow. That is Cruz Cay's advantage, and it is what justifies the investment in the causeway.

Another reported reason is that investors are thereby provided with more to choose from. Nieves pointed out that a causeway is not built in 48 hours.

Camaguey Three

At the end of the road, where the scenery opens up to reveal sand and shades of navy blue, we spoke with engineers Liusbert and Oscar. The causeway covers 2 km

of solid ground and 11 km of water on its way to Romano Cay (including 10 bridges), 25 km on Romano (one bridge), and 5 more kilometers (one bridge) connecting Romano and Cruz Cays. According to the map, the first bridge begins 2 km from Jigüey, and nine more are scattered along the bay at a rate of approximately one per kilometer until Romano is reached.

The bridges total 465 linear meters, to which are added another 134 meters of what are called structural works or water crossings. The total of 599 meters in bridges and water crossings, compared to 43,000 meters of roadway, means that there are 1.4 open meters for every 100 meters of causeway. It is calculated that the bridges on the bay provide an opening of 3.05 meters, whereas the 130-meter bridge between Romano and Cruz Cay has an average opening of 2.60 meters.

Ciego de Avila One

Capote, who is contingent chief, described how the causeway between Tunguano and Coco Cay had been built. It was another dramatic story of how man, when involved in big undertakings, redoubles his efforts. And wins.

One epic tale was followed by another. Capote is now a convert. He confesses: "Now it pains me to fell a tree or to see one felled." A discussion began. It was said that before the present era—that is, the past 20 years—there had been arguments on both sides. No more. The participants agreed that human beings were engaged in a big adventure and following every path from ignorance to the promising realms of understanding.

Since there was no plan to complete this causeway and link the sections together, Capote said in response to a question that today he would not move a finger without having a well thought-out document in front of him.

Ciego de Avila Two

The causeway movement began in the 1980's and resulted in the founding of this Center for Research and the Study of Coastal Ecosystems, which maintains monitors in Coco Cay. Someone commented: "It is science coming to the cays."

Meteorologist Celso Pazos, director of the center, emphasized that ecological monitoring covers the entire Sabana-Camaguey archipelago and is systematic and complete. It includes the physical, chemical, and ecological parameters of the environment's various components. Work with the indicators continues 24 hours a day in order to detect any change or sign of pollution.

He reported that in Los Perros Bay, salinity varies within a range of from 50 to 60 parts per 1,000. That is high, he admitted, but it has always been high because of the shoals, the high rate of evaporation, and the slow-moving water. Celso said that the high salinity was also caused by land-based factors that have not been thoroughly studied. The addition of freshwater from the rivers has been greatly reduced by the construction of dams.

Ciego de Avila Three

Along the 17 km of causeway leading to Coco Cay, bridges leave a total of 460 meters in open space, making an average of 2.70 meters per 100 meters. We also observed an uncounted number of water crossings: 8 meters connecting solid ground with the road, 17 meters more on the way to the cay, and another 14 meters on the cay itself. No one was able to say what the total length was.

Roads on the cay itself attracted our attention. In that connection, Celso said that certain international norms made it impossible to apply local standards to a number of roads that might be oversized. He then offered this bit of information: Only 1 percent of the cay has been touched so far, including hotels, roads, and airport. By the time the project is over, only 4 percent will have been occupied.

Pause for Reflection

I am assaulted by conflicting feelings. Is understanding increasing or not? Am I very naive, or is something new emerging?

Capote had just said that he was preparing to build six more bridges, including one ecological bridge to connect with the causeway. In Camaguey, upon seeing the ecologists, a contingent leader had yelled: "Here come the Greens; here comes the enemy." Today he is concerned and receptive.

Another thing: The wave of converts also includes scientists. Because just having the title of oceanographer, biologist, or geologist is not enough to make one environmentally aware.

On the other hand, I feel that we are incorporating the cays into the national territory. Not only from the economic point of view, but also from the standpoint of geography and sentiment. Romano Cay was once a remote paradise for wild horses, living a drowsy life far away.

Now here we are, separating myth from reality. How can we ignore such resources when the country needs to involve itself in sustainable development projects? Can we turn every cay into a sanctuary while millions of us are living crowded together on the narrow larger island? Does not that same large island need to resolve the pressure of 11 million inhabitants and the imponderables of an economy and culture that must grow in order to survive?

Will we destroy, through ignorance, those virgin patches of territory? Judging from what we see on a global scale, the possibility exists. Thinking that it does not would be very naive, to say the least. But neither do I consider it inevitable. If we had had today's understanding and a research center when we were building in Camaguey or Ciego de Avila, the cities which we love and which shelter us would now be inconceivably better.

In Colon we are starting an adventure that is not going to end. Goal? To harm as little as possible or harm nothing. And that includes healing what our predecessors scratched with their primitive ambitions for the future.

Villa Clara One

With Orlando Rodriguez, contingent chief in Caibarien, we began our dialogue immediately. This causeway does not go straight across the bay. Why? Answer: That was not the most appropriate route from the standpoint of the biodiversity of flora and fauna.

"Besides, the twisting route, being sheltered by whatever lies in its path, plus the 100 million metric tons that the causeway weighs, is what will protect it from major hurricanes."

He then went on to provide more information. Overall, the causeway is 48 km long: 43.5 km over the water and 4.3 km on land. There are 45 bridges with a length of 2,244 meters. We got out our calculator: Those figures work out to an open space of 4.67 meters per 100 meters. Those spaces, Orlando said, would provide a channel for 94 percent of the water that used to flow there. His figure seemed good and, in fact, very good.

But what will happen to the other 6 percent?

Villa Clara Two

The ecologist on this causeway, Angel Quiros, welcomed us with this news: According to studies, biodiversity has risen from 1.8 to 2.4 in the central part of Buenavista Bay, which has always been the most polluted bay. That is a promising result, he said.

I asked about salinity. Quoting the ICH [Cuban Institute of Hydrography], Quiros claimed that it does not exceed 47 parts per 1,000. That is an improvement over the 50 to 60 parts per 1,000 found in Los Perros Bay.

I commented on what a fisherman had told me: Shoals devoid of life are found close to the cay. Quiros confirmed that it was true and explained the phenomenon as being due to the fact that bridges in that location had not been opened up in time.

Later, as our boat was making the rounds, he pointed out the site in question. It was a low-lying area without much water circulation. And we could sense and smell what happens when interchange stops and the species living in a biotope that empties and fills every day end up washed ashore.

The water becomes stagnant and evaporates. Salinity increases. And those that cannot tolerate it die. Every time the salinity rises above the permissible level by one more part per 1,000, 100 species die, as was shown by biologist Pedro M. Alcolado of the Cuban Institute of Oceanology.

Villa Clara Three

In one of the temporary pipes (installed pending construction of the bridge), we observed that the fish were not using the passageway provided. They were waiting, but would not run the risk. But from time to time a small fish would be sucked in and bumped along. What did it mean? It meant that any fish that could, avoided the pipe. The pipe was not being used by the fish to migrate or move about.

When we reached the ecological bridge connecting Caibarien with the road, we brought the subject up again. Many fish migrate close to the coast in order to spawn. Without an ecological bridge, there would be far fewer fish in the estuary in the future.

Concluding Thoughts, Comparisons

Seeing three causeways one after the other and discussing the topic for a week leaves one with memories, thoughts, and comparisons:

1. The route followed by the Caibarien causeway is a harmonious expression of combined concepts aimed at protecting biodiversity, protecting the road, and sparing a vehicle's driver and its passengers the fatigue caused by straight stretches of road.
2. The absence of bridges linking the land to the causeway will lead to a decline in biodiversity and coastal fishing.
3. The location of bridges should be based on rigorous studies. Mistakes will be paid for indefinitely or in the form of new investments.
4. In Camaguey, neither the builders nor the ecologists had any available data on salinity.
5. If the 4.67-meter opening in Buenavista Bay allows an interchange totaling 94 percent, how much is allowed by the much smaller openings in Jigüey and Los Perros? No one I asked could answer that question.
6. In Caibarien Santa Maria I asked: What about the interchange amounting to 6 percent that is not allowed by the bridges? Where will it come from?

The answer, to my way of thinking, indicates a strategy and instills optimism in the sensitive observer. The causeway was designed on a broader scale. As a structure (at least according to the project), it will improve the ecology of a bay that has already been harmed by human influence and natural phenomena themselves. What are the additional tasks? To build channels in the shoal, extend channels through the mangroves—thus drawing much new water into the bay every day—and reopen the old Varas Channel, whose artificial closure has caused disasters in Caibarien. It will cost a few more pesos, but the area will be free of old conflicts.

Is everything as crystal-clear as Quiros, the monitor, and Orlando, the builder, explain it? Let us wait until the last word is spoken by the inexorable days to come.

DOMINICA

Farmers Lodge Complaints Over Chemical Exposures

FL2801151195 Bridgetown CANA in English
1339 GMT 28 Jan 95

[FBIS Transcribed Text] Roseau, Dominica, Jan. 28, CANA—Efforts are underway in Dominica to seek redress for banana farmers here who may have suffered because of exposure to the dangerous chemical, DBCP. DBCP is

reported to cause a type of sterility in persons who have been exposed to it for a period of time.

Visiting registered nurse Marie Witmer, conducting research for a United States Virgin Islands-based law firm, said about 92 local farmers are among a group of more than 16,000 plaintiffs scattered in Latin America, the Caribbean, Africa and the Philippines, who have been reportedly affected by DBCP between 1960-1980. Witmer, who was here a few months ago when she processed about 40 farmers, said there was a move in the United States to take legal action against Shell Oil company on behalf of the affected growers. "We're trying to get as much information as we can from the farmers, as far as their health is concerned and we need hard proof," she told CANA.

Local farmers have been encouraged to submit to laboratory tests in order to provide concrete evidence in relation to their claims. Witmer added there was evidence which suggested Dominican farmers have suffered from DBCP. "I've seen some very sick people, and a lot of farmers I've dealt with, male and female, have diagnosed cancer and can't do anything about it," said Witmer. "Of the men that I have interviewed, twenty of them have been diagnosed as sterile."

Shell reportedly settled out of court on DBCP cases involving farmers in Costa Rica. Witmer said she hoped the same could be done for Dominican growers.

Banana Farmers Seek Shell Oil Redress for Health Damages

*FL3001025495 Bridgetown CANA in English
2259 GMT 29 Jan 95*

[FBIS Transcribed Text] Roseau, Dominica, Jan 29, CANA—Efforts are continuing here to seek redress for Dominican banana farmers who may have been affected by the banned chemical substance DBCP. DBCP, produced by Shell Oil Company, is suspected of causing sterility if people have been exposed to the chemical for a period of time.

According to visiting registered nurse Marie Witmer, who is conducting research here for a U.S. Virgin Islands-based law firm, a total of 92 Dominican farmers are among a group of over 1,600 plaintiffs scattered in Latin America, the Caribbean, Africa, and the Philippines reportedly affected by DBCP between the late 1960's and the 1980's. Witmer who was here a few months ago when she processed 40 farmers, said a move was underway in the United States to take legal action against Shell Oil Company on behalf of the affected growers.

"We're trying to get as much information as we can from the farmers, as far as their health is concerned—and we need hard proof," she told CANA. Farmers here are being encouraged to submit to laboratory tests to substantiate claims about the effects of DBCP. According to Witmer, there is evidence that Dominican farmers have suffered because of the chemical. "I've seen some very sick people, and a lot of farmers I've dealt with, male and female, have diagnosed cancer and can't do anything about it," the

nurse said. "Of the men that I have interviewed, twenty of them have been diagnosed as sterile," Witmer said.

Shell reportedly settled out of court on DBCP cases involving farmers in Costa Rica, and Witmer is hoping that a similar approach could be taken in the Dominica situation.

GUYANA

Editorial on Interest in Establishing Environmental Agency

*FL3001193495 Bridgetown CANA in English
1615 GMT 30 Jan 95*

[All quotation marks as received]

[FBIS Transcribed Text] Georgetown, Guyana, Jan. 30, CANA—Following is the text of the editorial in Monday's STABROEK NEWS newspaper.

"The functions of the new Environmental Protection Agency (EPA), which the government is seeking to set up, should be multifaceted and extensive.

It must first of all, as we have said before, be autonomous or semi-autonomous.

This is necessary because the state itself is heavily engaged in activities which an EPA would have to regulate (sugar and bauxite). An EPA which is within the fold of government would be hesitant to enforce regulations where state activities are at stake.

The EPA must have exclusive legislative and administrative authority over the Kaleidoscope of environmental and conservation issues.

At the moment, responsibility for environment-related issues is scattered among a handful of ministries and related bodies.

GAHEF [expansion unknown] comes under the Ministry of Health, the embryo of the EPA is within the Office of the President, the Wildlife Unit is ensconced in the Ministry of Agriculture, testing is done by the Food and Drug Department and the Institute of Applied Science and Technology while conservation matters such as the Kaieteur National Park and forestry are handled by the Ministry of Health and the Forestry Commission respectively.

The EPA must be the repository of authority for all of these areas. It may be that the magnitude of this task and the need to endow the EPA with the requisite skills and resources has delayed significantly the launching of the agency.

But efforts can initially be made to stream-line the resources at the disposal of the government so more efficient use is made of them.

The need for the formal start-up of this agency is pressing. Among some of the vital tasks the EPA must perform are tabulation of baseline data on industrial waste emission to provide a database from which standards can be derived.

There should be strict monitoring of the variety of pesticides and insecticides imported, their use, application and absorption into the surroundings.

The EPA must undertake rigorous checks of interior waters where mining is taking place. Methods of mining must be scrutinised and the EPA must be empowered to make recommendations for the preservation of the environment through modified operations. The EPA must be able to assess damage in any area and order clean-up operations. Degradation in bauxite areas and the resultant dust pollution must be addressed.

The state of our forests and definitive positions on sustainable operations must also be worked on by the EPA.

Disposal of solid waste and the state of landfills is another area which will require keen attention.

The list of duties is endless and will grow even further as economic activity speeds up."

Government Opposes Nuclear Waste Shipment Through Caribbean

FL2101010895 Bridgetown CANA in English
1756 GMT 20 Jan 95

[FBIS Transcribed Text] Georgetown, Guyana, Jan 20, CANA—The Government of Guyana has spoken out against the shipping of nuclear waste from France to Japan through the Caribbean. It has joined other Caribbean Community countries, notably Trinidad and Tobago and Barbados, and the environmental pressure group, Greenpeace International, in opposing what Greenpeace said is a plan by France to ship nuclear waste to Japan through the region.

"The information available to the Guyana Government suggests that this is a rather serious potential threat, not only to regional security, but global security," Foreign Ministry spokesman Arnon Adams told the Caribbean News Agency. "It is estimated that a complete shipload could contain possibly ten times the radioactivity released during the Chernobyl nuclear disaster" (in the former Soviet Union in 1985), Adams said. He said an accidental release of a small part of the material anywhere in the Caribbean Sea "could result in a major environmental disaster".

The Guyana spokesman said: "The government of Guyana, as an immediate measure, calls for the cessation and or the diversion of the shipment through the Caribbean Sea."

Barbados Prime Minister Owen Arthur, as chairman of the 13-member Caribbean Community, last month said that the region remains "implacably opposed" to the movement of the waste through the region and appealed to the international community to heed the wishes of the Caribbean. Arthur had said that the Community "would strongly deplore" any plans to ship the nuclear waste though the Caribbean and described as "unacceptable" the fact that any nation friendly to the region could ignore the concerns of people of the Caribbean.

Environmental Agency Debate Includes Churches, Investors

FL2301171195 Bridgetown CANA in English
1456 GMT 23 Jan 95

[FBIS Transcribed Text] Georgetown, Guyana, Jan. 23, CANA—Following is the text of the editorial in the STABROEK NEWS newspaper:

"The environmental affairs of the country since the advent of the PPP [People's Progressive Party]/Civic government remain largely a mystery. The National Environment Action Plan was presented last year to the National Assembly but beyond that the silence of the government on environment matters has been louder.

It was not that the predecessor government basked in the glow of a more encouraging record on the environment. It didn't have an encouraging record.

However, there was an agency—the Guyana Agency for Health Sciences Education, Environment and Food Policy (GAHEF) to which one could address complaints and make queries on matters and these would be addressed by Dr. Chin (now in the private sector).

When this government came to power, GAHEF was disbanded. It was not an unreasonable move. GAHEF had represented an uncomfortable mix of responsibilities that did not get well [as received] and which inhibited effective control and oversight of those areas. Since then, there has been a virtual suspension of action. There is still some dispute, despite being broken up, over whether GAHEF exists or not.

The government had set up an environment unit within the Office of the President headed by Dr. Lakeram Chatterpaul. It was envisaged that this unit would grow and take on a life of its own. It is however suspended in an inanimate twilight without the underpinnings of legislation and without the lifeblood of facilities and staff.

It is uncanny, but several pieces of legislation, the bill to establish the proposed Environmental Protection Agency and the laws that mandate impact assessment studies for every development activity, are still in gestation despite the fact that drafts for such legislation were left by the previous administration.

Observers have expressed the view that the sloth in setting the process in train for a strong and competent environment agency is due to concerns that prospective investors would be deterred from ploughing risk capital into the country if they were slapped with rigid environmental guidelines that had to be met.

That, however, will not do. Guyana is not a horror story of environmental catastrophes erupting from day to day. The potential is nevertheless there for things to go horribly wrong and it is for this reason that a strong, vigilant body is needed.

With operations such as bauxite, gold and diamond mining and their attendant technique and significant agricultural activities there are myriad responsibilities which an active environmental agency can assume.

The government must give clear thought to this matter and make certain that responsibility for the gamut of environmental and conservation issues be ensconced rapidly in such an agency and that it is accorded the necessary facilities and anchored by legislation.

An agency with the vigour and zeal of the present Standards Bureau would be an auspicious start."

ST VINCENT & THE GRENADINES

Health Secretary Reports Government's Landfill Plans

FL2701005395 Bridgetown CANA in English
2102 GMT 26 Jan 95

[FBIS Transcribed Text] Kingstown, St. Vincent, Jan. 26, CANA—The St. Vincent and the Grenadines government will spend just over E.C.10 million to develop three landfill sites for the disposal of garbage, acting permanent secretary in the health ministry, Carl Browne said. Two of the sites would be on St. Vincent with the other site earmarked for the Grenadines. It is part of an OECS [Organization of Eastern Caribbean States] solid waste management project being undertaken in conjunction with the World Bank and, although Browne did not give an actual start up date, he said the project should soon come on stream.

"The Arnosvale dump has been a problem for a long time, much has been said about it and we are moving to the stage now where we would probably see the removal of that site," Browne told CANA. He said equipment had been identified and the project should eliminate such problems as scavenging and the breeding of insects and other pests as is the case at the lone open dump at Arnosvale, which sits parallel to the airport's runway.

The health official said there was a growing problem of refuse disposal which needed to be addressed. "The cost of the project is a lot more than the government spends in maintaining the sanitation services now and therefore, there are going to have to be ways and means of generating some kind of revenue" to maintain it, he added. This would include a cost to private enterprises for the management and disposal of their garbage, Browne said. World Bank funding for the project is part loan and part grant.

TRINIDAD & TOBAGO

Editorial Contrasts Government Bill, Swamp Degradation

FL2501185995 Bridgetown CANA in English
1350 GMT 25 Jan 95

[FBIS Transcribed Text] Port-of-Spain, Trinidad, Jan. 25, CANA—Following is the text of the editorial in Wednesday's EXPRESS newspaper:

"The year of the environment as designated by the government is almost a month old. The degradation of the Nariva Swamp continues.

The fact that government has the environmental management bill 1994 before the Senate has been so far obviously too subtle a message.

The recent announcement by minister of agriculture, lands and marine resources, Keith Rowley, that government intends to follow through on plans for protection of the swamp and other endangered resources has also gone unheeded by the destroyers and new areas of the eastern wetlands have been put in jeopardy.

The ecological balance of the swamp is in danger of being seriously disrupted. Wildlife species are literally fighting for their lives. But what really is the government's intention in respect of the environmental management bill as it relates to Nariva? Senator Martin Daly speaking in the debate on the bill, has pointed out that the bill has been brought without any policy statement on government's approach to the environment and wildlife. Senator Daly wanted to know for instance what was going to happen to the Nariva Swamp which he described as "the litmus test to government's attitude to the environment." Well what indeed?

Minister of planning and development Lenny Saith in the same debate expressed government's concern "to check the growing incidence of environmental degradation. That unhappy process is manifest in forest destruction, river pollution, irresponsible quarrying of limestone, gravel and sand, water pollution, particularly on the west coast, soil pollution resulting from indiscriminate use of agricultural chemicals, improper disposal of liquid and solid wastes, etc..."

What is most impressive about Dr. Saith's concerns is that Nariva is apparently not one of them, Dr. Rowley's statement outside of parliament notwithstanding.

Where in Dr. Saith's contribution is the message to the illegal rice growers who are destroying the swamp? How can he be specific about the northern range and ignore Nariva when this is the prime example of environmental degradation in this country today? Nowhere in the minister's speech of 22 pages does the word "Nariva" appear.

But he is long on how high powered the proposed environmental protection agency and the environmental management authority will be. We are therefore supposed to believe that the new authority will be the effective answer to all the environmental anxieties given voice to over the years.

Is Senator Saith asking us to look forward to the final extinction of the environmental toothless tiger? That is what the country hopes and prays.

But other signs coming from what may be called the government's body language give us serious cause for doubt."

Squatters Protest Relocation Following Lead Contamination

*FL2801163195 Bridgetown CANA in English
2203 GMT 27 Jan 95*

[FBIS Transcribed Text] Port-of-Spain, Trinidad, Jan. 27, CANA—Scores of squatters staged a noisy protest outside the Trinidad and Tobago parliament Friday against government's plan to relocate them.

The ruling party's representative, Dr. Rupert Griffith, said that government wanted to relocate the squatters since the area where they lived was highly contaminated by lead.

Chief whip for the opposition United National Congress (UNC), Ramesh Maharaj, however, complained that government had started knocking down homes in the eastern Wallerfield region and it was illegal. "What they have done is that they have started to demolish homes on the land. What is happening is that the forceable entry upon the land and the demolition of these houses amount in law to a

criminal offence under the statute of forceable entry," said Maharaj, who took part in the demonstration.

Dr. Griffith, who represents the People's National Movement (PNM) in the eastern constituency of Arima, denied that government was demolishing homes. "They are marching against the fact that the government took a decision from a humanitarian reason to relocate (them) to a site less than one mile from where they are now as a result of lead contamination brought there by a neighbouring lead company," he told the CARIBBEAN NEWS AGENCY.

Last year, several families became very sick and were hospitalized after a high level of lead was found in their blood stream. Residents began complaining of feeling sick shortly after some relatives began bringing batteries into the dwelling area to extract the lead.

"The government did its research and found that the area was widely contaminated with the lead, in some areas, even as deep as ten and twelve feet," Griffith reported.

PAKISTAN

Naval Chief Wants Check on Marine Pollution

BK3001105495 Karachi DAWN in English 29 Jan 95 p 4

[FBIS Transcribed Excerpt] Karachi, Jan 28: Chief of Naval Staff Admiral Mansurul Haque has assured the scientists that he will persuade the government to formulate laws to effectively check the marine pollution.

Inaugurating a two-day seminar on "Marine pollution and its effects on coastal areas and harbour", organised by PN Engineering College on Saturday, the naval chief urged the engineers to update themselves and seek practical environmental options that can co-exist with economic growth.

He suggested that the subject of environment be included in curricula at all levels, particularly at the engineering universities, so that sustainable development could be achieved. He stressed that awareness regarding pollution be created among masses.

Admiral Haque, who is also the chairman of the Marine Pollution Control Board, said the untreated effluent that the city's coastal waters received comprised 84 percent industrial and 16 percent municipal sewage.

"The harbour alone received over 150 million gallons of untreated industrial effluent which was creating serious problems for the harbours." He said earlier the water used to be so clear that tourist at the Manora Island used to throw coins in sea and the young island boys would jump in and receive the coin, but today the water is dirty and one cannot see in it.

Karachi Port Trust [KPT] Chairman (retd) Admiral Akbar H Khan said the KPT had been given the magisterial powers and it has begun the policing of the mangroves, while, according to the World Bank recommendations, a Pollution Monitoring Cell was also being set up to keep a check on the regular flow of over 280 million gallons daily of untreated sewage.

Director General of Sindh Environmental Protection Agency (SEPA) Mahtab A Rashdi stressing the need for creating awareness at all levels, informed the audience regarding the National Environmental Quality Standards (NEQS) and said new industries would have to follow

these standards as they have been directed to set up facilities for treatment of their hazardous waste by June 30, 1996.

Other experts, presenting highly educative papers, punctuated with extensive scientific data, painted a grim picture of the coastal waters.

They said the waters were highly polluted and marine food products were contaminated with untreated toxic and hazardous effluent from tanneries, textile and polyester factories, pharmaceutical and petrochemical units, oil refineries, cement plant, shipyard, steel mills, thermal power stations, fish harbour, synthetic fertilisers and pesticides etc. [passage omitted]

UNITED ARAB EMIRATES

Fifteen Marine Pollution Accidents Reported in 1994

NC2101190595 Paris AFP in English 1801 GMT 21 Jan 95

[FBIS Transcribed Text] Abu Dhabi, Jan 21 (AFP)—Tanker collisions and leaks from oil terminals caused 15 marine pollution accidents in the United Arab Emirates (UAE) in 1994, an official report said on Saturday [21 January].

The worst accident occurred in March off the eastern port of al-Fujayrah, when nearly 15,000 tonnes of crude spilled into the Gulf of Oman after two tankers collided, the report by the coastguard authorities said.

Other accidents involved damage to oil pipelines and loading terminals but were not serious, the report said.

Six accidents occurred in Dubai, five in Abu Dhabi and the rest in the other five emirates.

The report made no mention of daily dumping of sludge and other waste by tankers cleaning their oil storage tanks.

A recent United Nations report said the Gulf was nearly 100 times more polluted than other seas due to frequent marine accidents, leakage from pipelines and terminals and waste-dumping by vessels.

More than one million barrels of crude oil spill into Gulf waters every year due to such incidents.

Scores of ships ply the Gulf daily to collect oil from Saudi Arabia and other Gulf states, which control more than half the world's oil supplies.

RUSSIA

Assurances Given Over Moscow Chemical Waste Dump

MM2301135795 Moscow RABOCHAYA TRIBUNA
in Russian 21 Jan 95 p 3

[Report by Lidiya Smal under the rubric "Returning to an Earlier Theme": "In Moscow Oblast's... Toxic Rayon"]

[FBIS Translated Text] A report by our correspondent Mikhail Lunev from Domodedovskiy Rayon (RABOCHAYA TRIBUNA for 15 October 1994) voiced alarm over the plight of five villages which find themselves in the zone of the Poldolsk Chemical and Metallurgical Plant's dumping site.

The editors recently received a reply from V. Bolshov, chief of the Moscow Oblast Prosecutor's Office Administration for Supervising the Implementation of Laws and the Legality of Legal Acts. Pointing out that at the present time no grounds exist for the prosecutor's office to intervene in the situation, the author of the reply to RABOCHAYA TRIBUNA nevertheless elaborates on the causes of the environmental crisis in Moscow Oblast. First, in his opinion, environmental protection measures were not observed during the development of the sites for industrial waste in 1969: Waterproofing treatment and preparation of a proper bed for the dump were not carried out. As a result both surface and ground waters, bottom deposits, the soil, the atmosphere, and plant life were polluted. And although the site was closed in 1988, "the quality of the water in the wells of the villages of Shcherbinka and Kuchino are unsatisfactory according to chemical indicators." However, V. Bolshov explains, inhabitants can use a new artesian well, whose water meets the quality standard.

The following addendum is also very important: At the present time the Podolsk Chemical and Metallurgical Plant's special site has a designated safeguard; sectors with pronounced radiation anomalies are screened by a protective layer of soil. The entire territory is under the special oversight of the State Committee for Sanitary and Epidemiological Supervision and the environmental protection services. In addition, Moscow Oblast Administration has scheduled a series of effective measures to revitalize the region.

Consequences of Chechen War For Russian Environment Assessed

95WN0074A Moscow NEZVISIMAYA GAZETA
in Russian 13 Jan 95 p 1

[Article by Vasiliy Yegorov, under rubric "Opinion": "Combat Actions in Chechnya Are Shattering All Hopes of Russia's Ecological Recovery: The problems of the environment have been sacrificed to rash political decisions"]

[FBIS Translated Text] As soon as the television screens began showing scenes of burning oil storage tanks in Grozny, the press immediately reported an imminent ecological disaster in the North Caucasus region. And

there is nothing surprising about this, especially if one takes into consideration the closeness in time of the fires in the oil fields of Kuwait which had even more catastrophic consequences.

However, when one takes a more professional view of what is occurring, it becomes understandable that the greatest ecological danger is definitely not represented by the burning oil, by the increased concentration of carbon dioxide and similar consequences, or even by a possible disaster with ammonia and chlorine which, according to certain information (which, incidentally, has not yet been confirmed or refuted) are being stored at oil refineries in Grozny.

The chief result of this crime (and arson involving oil storage tanks and oil wells is definitely a crime, whether it has been perpetrated by defenders of the Dudayev regime or by federal troops, or whether it became inevitable as a consequence of combat actions) will be the undermining of the ecological policy that was in operation—sometimes inconsistently, and sometimes in a not very noticeable or convincing manner—for Russia's ecological recovery. The environmental problems, which for many years have already been urgent ones requiring adequate efforts, rather than high-sounding words that do not require anyone to do much of anything, have been sacrificed to poorly thought-out and rash political decisions.

One can feel nothing except grief when one learns that, according to the estimates given by certain experts, the combat actions, and subsequently the restoration of what was destroyed, will cost—if they have not already cost—3.5 trillion rubles, and that is practically an amount four times greater than the amount that was planned for resolving the ecological problems in 1995. The basic areas in the state strategy of the Russian Federation for protecting the environment and guaranteeing the changeover to the model of stable development will now remain only good intentions. Today the question of where to get the funds to resolve the ecological problems of the Caspian and Lake Baykal, and to provide half the population of Russia with high-quality drinking water and the inhabitants of Bratsk, Magnitogorsk, and dozens of other smoking cities of Russia with pure air is completely moot. Funds for problems like this are simply nonexistent in a budget that is coming apart at the seams.

But this is not just a matter of the trillions that have been lost for the ecology—just as, incidentally, they have also been lost for culture, education, and public health—but primarily a matter of lost human lives, the number of which is not limited simply to those persons who were killed in combat actions. To that number one must add those 20,000 Russians who annually become ill with lung cancer because of natural sources of radioactive radiation. The amount of money that was appropriated for the program to protect the population against those sources was a mockingly ridiculous total of 110 million rubles, which is only thousandths of a percent of the cost of the Chechen escapade. Meanwhile, a minimum of 50 billion rubles is required to resolve this problem.

National parks, without which it would be impossible to imagine any civilized country and which are currently on the brink of complete collapse, could exist comfortably and even develop right up until the year 2005 if the country's environmental protection system had 450 billion rubles. A fourth of the money that has been squandered to bring Chechnya to its knees would be enough to carry out a program for recycling waste or rendering it harmless. Ten more days without war and it would be completely possible to stop the production of substances that destroy the ozone.

This war is burying all hopes (and until recently those hopes were still being kindled) that it will be possible to cure at least a few of the country's ecological plagues.

Oil Company President on Usinsk Pipeline Disaster

95WN0075A Moscow DELOVOY VTORNIK (TUESDAY BUSINESS SUPPLEMENT TO KOMSOMOLSKAYA PRAVDA) in Russian 17 Jan 95 p 1

[Interview with Valentin Zinov'yevich Leonidov, president of KomiTEK Oil Company, conducted by Maks Yevgrafov: "The Oil Pipeline Broke in Moscow, Not Outside Usinsk"]

[FBIS Translated Text] *Journalist Maks Yevgrafov spoke with Valentin Leonidov, president of KomiTEK Oil Company, of which Komineft AO is a division.*

Yevgrafov: Valentin Zinov'yevich, in your opinion, how soon will it be possible to complete cleanup of the oil spill near Usinsk?

Leonidov: In April. Maybe May—everything depends on when spring arrives. Not spring on the calendar, real spring.

Yevgrafov: But isn't some oil being cleaned up already, anyway?

Leonidov: We have set up a whole structure to do that. Depending on weather conditions, there are between 80 and 180 people working to clean up the area. In areas where the density of the spill is particularly high, we are heating the ground with the aid of mobile boilers units and transporting the oil to our facilities, together with the soil whenever possible. In the wintertime that kind of work is tremendously expensive, and the results are slight. Nevertheless we have already cleaned about 15-20 percent of the affected area, and we have gotten to about half of the most heavily polluted sections.

Yevgrafov: Are you using mechanical processing exclusively?

Leonidov: We have had Australians come in and bring chemical reagents which they claim are effective down to a temperature of -40 degrees. So far they have not had any success, but they are continuing to experiment.

Yevgrafov: Who is paying for the cleanup?

Leonidov: Komineft is bearing the whole cost. We have a promise of help from the governor of Alaska, who is

president of the Northern Forum (he made a special visit to Usinsk), but so far that is where it stands. Nor is the government providing us with any material assistance. True, Prime Minister Viktor Chernomyrdin is trying to get World Bank loans. He has sent a letter to the president of the World Bank requesting \$100 million dollars.

Yevgrafov: As I understand it, cleaning up the spill will cost R50-60 billion [rubles].

Leonidov: That's not counting pipe replacement. We have already replaced 52 kilometers of pipeline, and we have about another 100 to go, plus a parallel line—that will bring the cost up to around \$100 million.

Yevgrafov: Is there any guarantee that this kind of accident will not be repeated in the future?

Leonidov: You must realize that it did not come as a surprise to us. We had surveyed the pipeline, and we were aware of its poor condition (many of the pipe sections are 20 years old). We were simply unable to prevent this disaster due to a lack of funds. Let's be realistic: as long as the present confiscatory tax situation exists, no region is safe from something like this (take the recent accident in Tyumen). It is crazy for approximately 90 percent of the price of oil to go for taxes. At the present time we do not have enough money to maintain the oil transmission system in proper operating condition, or to produce oil. Drilling one well 3.5 kilometers deep (by comparison, an average well in Tyumen is 2.5 kilometers deep) costs a billion rubles. Worse yet, up to 30 percent of the wells that have already been drilled are not in production, and for the same reason. Not to mention the fact that sometimes there is no money to pay wages. I very much hope that the Komi State Council, which will be elected a few days from now to replace the current Supreme Soviet, will be able to resolve tax issues with the federal authorities. After all, over half of the republic's budget revenues come from oil and gas. Komi is living off of our industry.

Yevgrafov: Do you believe that this was the largest spill in Russia in recent memory?

Leonidov: Absolutely not. The others were just not reported. This time all the media descended on us. But every cloud has a silver lining. I get calls from our English partners saying: "Leonidov, do you really have such huge oil reserves that you spilled two million barrels and didn't even notice?" Seriously, there have been worse spills. Particularly in the 1970's and 1980's—nobody thought about the environment back then. Picture this: in the mid-1980's an exploratory well at the mouth of the Pechora River gushed continuously for six weeks, spewing out a thousand cubic meters of gas condensate a day. As I understand it, they used an underground nuclear blast to shut it off.

Yevgrafov: You have been accused of attempting to hush up what happened.

Leonidov: We did not conceal anything. Why, back in August we reported what had happened to the local press

and Russian TV. We also informed Moscow and Syktyvkar. Of course we didn't proclaim that it was a disaster on a par with Chernobyl—though people have been constantly trying to get me to say that. That is a lie. This was a spill of average severity, and in August nobody in the world reacted to it. When an article appeared in the NEW YORK TIMES in October, then it was on... I suspect that all this commotion was instigated by Western companies who would benefit from tarnishing the reputation of our oil transmission system and proving to everyone—not without some basis in fact—it's unreliability. After all, the Americans are currently lobbying for an alternative project, which would involve building an 300-kilometer pipeline from us to the Barents Sea and a terminal there, and transporting the oil by sea. But that oil would be lost to Russia, and its factories would not get a single ton of it.

Whatever happened, we have been visited by innumerable commissions of experts and journalists (if we had handed everyone who came a shovel, the whole mess would have been cleaned up long ago!). No one has refuted our figures about the scale of the spill, neither the Russian Federation Ministry of Emergency Situations, nor a similar structure here in Komi: the amount spilled was 14,000 metric tons of pure crude oil and 30,000 metric tons of oil-bearing liquid.

There has been a great deal of speculation about the spill here in Komi. Local nationalist radicals immediately started talking about "extermination of the native population." I was even forced to account to the Supreme Soviet in response to a letter claiming that the oil polluted a village located upstream! The "Usinsk card" is also going to be played during the upcoming State Council elections. I do not play that kind of "card game." If a mistake is made, it should be corrected, instead of playing politics with it.

Vladimir Oblast Environmental Hazards Scored

95WN0076A Moscow ROSSIYSKAYA GAZETA
in Russian 12 Jan 95 p 4

[Article by Yury Shatalov, reporting from Ivanovo and Vladimir Oblasts: "A 'Mine' in the River: Residents of an Ancient City Still Live With Threat of Poisoning"]

[FBIS Translated Text] Vladimir Oblast is dying. That was the sensational conclusion contained in an environmental bulletin published by the oblast's environmental protection committee. On what basis did the experts arrive at such a grim conclusion?

There is plenty of cause for concern. In 1992-93 the mortality rate in Vladimir Oblast exceeded the birth rate. There has also been an increase in the incidence and severity of disease, and air, water, soil and foodstuffs continue to be contaminated with hazardous substances.

In October 1994 the residents of Vladimir were jolted by a report that Petrovskiy Sovkhoz in Ivanovo Oblast had discharged a large quantity of liquified manure into the Nerl River, from which approximately 220,000 people in Vladimir get their drinking water. Tap water became not only undrinkable, but even unfit for other household uses.

In its 26 November issue ROSSIYSKAYA GAZETA reported on the emergency that exists in the oblast as a result of this act of criminal negligence. Currently a special investigative team is studying the circumstances surrounding the incident. It has not yet reached any conclusions. But the oblast environmental protection committee has already levied a fine of 20 minimum monthly salaries on sovkhoz director Leonid Frolov.

It is ironic to note that it was precisely with the arrival of Leonid Leonidovich Frolov that local residents began to see an improvement in all aspects of production, including the large livestock complex that had for a long time been the area's primary source and spreader of public health hazard. And that really was the case. Under Frolov residents of the village of Morozovo did everything it was in their power to do. But all they could do proved to be too little! They were unable to halt pollution of water sources. Eventually the pollution infiltrated the groundwater that feeds wells. The water in them began to smell constantly of manure.

The desperate people repeatedly appealed for help from local and rayon leaders, demanding that they set things aright and make their lives bearable. But it is not that easy to satisfy their demands now. In order to eliminate the constant threat of sewage pollution of groundwater and the Nerl River, it would be necessary to clean out completely a pond located near the livestock complex and remove thousands of tons of silt and manure from its bottom. But in addition to a willingness to do the job, huge amounts of money are also required, something that the sovkhoz and the rayon administration do not have. Therefore things were left as they were, in hopes that the good luck would last.

It did not. A time bomb in the form of the long-polluted pond exploded in October. Approximately 8,000 cubic meters of animal waste poured out into the Nerl River. Who is to blame for this criminal negligence?

The prosecutor's office in Gavrilovo-Posadskiy Rayon has several theories about that. It is possible that a gate valve in the lower well of the pond's drainage system was opened by one of the long-suffering residents of Morozovo to attract public attention to their plight at the cost of poisoning the Nerl River, having been unable to do so by civilized means.

Local kids (who gather in the evenings at a local club) "just acting stupid" might have opened the barrier, theorizes Gavrilovo-Posadskiy Rayon prosecutor Vladimir Prygunov, or it might have been some former employee of Petrovskiy Sovkhoz, trying to get back at director Leonid Frolov.

The theories may vary, but the result is the same: an evil thing has occurred. Therefore one can understand the efforts of law enforcement agencies to find the ones responsible for planting this "mine" as soon as possible. However, some people are worried that the righteous wrath of the public, the media, law enforcement agencies and governmental bodies will quietly fade after the offenders have been caught and an example made of them. And the fact that the Nerl River was poisoned will be just another unpleasant episode in our rapidly-moving lives.

But the incident in Vladimir is not just an annoying episode. It is the logical outcome of an extremely bad environmental protection situation in the region. For example, in Vladimir Oblast's Suzdalskiy Rayon alone there are 12 agricultural enterprises operating inside the sanitary protection zone around the Nerl River Intake Station, which supplies water to the 220,000 residents of Vladimir. For many years now they have all been poisoning the Nerl. The technological squalor of the local farmers is absolutely depressing. For instance, in the wintertime they feverishly spread liquified manure on the fields, then in the spring virtually all of it washes into the Nerl River with water from the spring thaw.

Experts from the oblast environmental protection committee have calculated that in 1993 alone agricultural and other enterprises discharged 1,802,000 cubic meters of poorly treated waste water into the Nerl River, along with 413 metric tons of organic substances, 61 metric tons of nitrates, over 2,000 metric tons of chlorine, 2,000 metric tons of phosphates, 121 metric tons of petroleum products, one metric ton of zinc and almost seven metric tons of ammonium nitrogen.

Realizing just how sinister those figures are, we are not surprised that the people of Vladimir Oblast live 10-15 years less than, for example, people in Scotland or Switzerland. What surprises us is this: why are they not all mutants, drinking that water day after day?

Komi Pipeline Spilled 200,000 Tonnes of Oil

*LD2501122495 Moscow Radio Rossii Network
in Russian 1000 GMT 25 Jan 95*

[FBIS Translated Text] Work is continuing to eliminate the consequences of the accident that occurred on the oil pipeline not far from Usinsk on Monday [22 January]. It was reported to a RIA news agency correspondent at the press service of the Ministry for Civil Defense, Emergencies, and Natural Disasters that almost 1.5 square km are covered with oil at this time.

I will remind you that it was precisely along this section of the pipeline that several oil leaks occurred last year. According to the estimates of experts from the Russian social and ecological union, the overall amount of oil which got into the environment last year owing to accidents in that area was 200,000 tonnes.

Ecological Impact of Chechnya War Assessed

*MM2601113995 Moscow ROSSIYSKIYE VESTI
in Russian 25 Jan 95 p 2*

[Article by Aleksey Yablokov, corresponding member of the Russian Academy of Sciences, and Candidate of Chemical Sciences Svetlana Revina: "Dudayev's Regime Threatened Ecological Warfare"]

[FBIS Translated Text] No one can be left indifferent by the tragedy that has hit Chechnya. The time has now come to begin repairing the damage, and in this connection we wish to draw attention to the ecological problems of this republic.

The extremely difficult ecological conditions in Checheno-Ingushetia date back to the Soviet period. The majority of major industrial enterprises became technically obsolete long ago. One oil refinery in Groznyy is over 100 years old—almost the oldest oil-refining enterprise on Russian territory.

Only recently all the oil refineries in Chechnya processed up to 20 million tonnes of oil per year, and relentlessly polluted the air and soil around them. It is well known that Groznyy has for many years been among the Russian cities with the highest level of air pollution.

Chechnya was also one of the country's most unsuccessful regions in terms of recycling industrial and domestic waste; at the present time there are evidently more than 1 million tonnes of industrial and domestic waste lying at makeshift dump sites. There is on this territory not a single site equipped for burying waste. It is to a large extent precisely because of ecological factors that the level of infant mortality here has been almost double the average for Russia as a whole, and in the past three years almost the highest in the world.

With Dudayev's seizure of power in 1991 the already not particularly well-developed system for monitoring the state of the environment and public health—the sanitary and epidemiological services and the ecological, mine engineering, forestry, hunting, and water services—began to collapse, and by the beginning of 1994 all these organs had ceased to exist in Chechnya. However, the same had happened to many other structures of state power. In terms of the level of state administration Chechnya found itself back in the Middle Ages.

There is convincing information to suggest that the Dudayev regime was prepared to turn the Groznyy region into an ecological disaster zone. Facilities at major plants in Groznyy were mined. And explosive and combustible oil-refining and petrochemical industry enterprises are located here on the small territory of Zavodskiy Rayon. It is known that the territory of the Ansimov Oil and Gas Industry Plant, Groznyy's Lenin Oil Refinery, and the experimental industrial test site is steeped in petroleum products to a depth of up to 12 meters as a result of leakage over many years! It would be very difficult to extinguish a fire in these polluted areas, and indeed such a fire could spread not only along the ground but also underground, along the underground power engineering infrastructure. Let us add that the industrial zone's dumps contain many thousand of tonnes of toxic industrial waste. If this caught fire, the atmosphere not only of the city but also that of remote suburbs would be poisoned by the toxic products of combustion.

The Chechen gunmen also threatened to mine the dam of the Chernorechenskoye reservoir, in which the level of water is 38 meters higher than downtown Groznyy. If the dam were to be blown up, a tidal wave of water and stones would descend on a considerable part of the city, sweeping away everything in its path.

Chechen territory contains the regional burial ground for radioactive waste. In addition, as throughout the Northern Caucasus, there are old livestock burial grounds here, where anthrax pathogens have been preserved for many decades. So far the worst has not happened, and we hope that everyone has sufficient wisdom not to allow it to happen.

It can now be said that, from the first days of the escalation of the armed conflict, all these potential ecological dangers have been seriously discussed in the Security Council, the Ministry for Affairs of Civil Defense, Emergency Situations, and Elimination of Natural Disasters, the Russian Federal Service for Hydrometeorology and Environmental Monitoring, and other departments. It is to a significant degree thanks to this that it has been possible to keep the ecological situation under control.

All these regional ecological peculiarities must be considered when restoring the life and economy that have been so disrupted. One of the most urgent tasks right now is to get the sanitary and epidemiological service working again: There is a great danger of the spread of infections and parasitic diseases. This problem is already being tackled. The work of the local departments of the Roskomvod [precise expansion unknown—possibly, Russian Committee for Water Resources] and the Russian Federation Committee for Land Resources and Land Management is being organized, hydrometeorological and environmental monitoring is being resumed, and reforestation work (on which the quality of water, and therefore public health health as well, to a large extent depends) will be undertaken. All the federal structures are currently elaborating their own plans on how to help restore the Chechen economy quickly and effectively. It will be more difficult to heal the psychological wounds and alleviate the pain of losses....

The Chechen drama has shattered the mutual understanding which had formed among Chechens, Russians, and other inhabitants of this part of the Northern Caucasus. This mutual understanding will inevitably and surely be restored; it will come about through reflecting on and reassessing today's tragic events.

What ideas of national revival can possibly justify the mass oppression of Russians who have lived in Chechnya for generations? It is impossible to read without distress the stories, some of which are related in ROSSIYSKAYA GAZETA's "White Paper" section on Chechnya, of Russian families thrown out of houses and apartments onto the street, of the violence and insolence to which they are subjected. Yes, there are a number of examples of the direct opposite, of Russians trapped in the zone of combat actions being rescued by Chechens. But if this had been the general treatment of Russian civilians, why were 150,000 (!) Russians forced to flee from Chechnya upon Dudayev's coming to power? And we cannot understand why the voice of our human rights defenders is not being heard right now in defense of the right to life of these thousands upon thousands of outcasts wandering Russia's expanses.

There are also questions for some of our democratic leaders. How can the imposition of order (albeit carried out with tragic ineptitude) on what is, after all, Russian territory, be called Russian "aggression"? We cannot understand how a Russian democratic politician can say that the bombing of Grozny could be followed by the bombing of Warsaw, thereby comparing Chechnya's status with regard to Russia with that of Poland's. Not one foreign politician has ventured to recognize Chechnya as an autonomous state. But another of our democratic leaders, speaking publicly about Chechnya, stated that the USSR "split de facto into 16 autonomous pieces," thereby comparing Chechnya's status with regard to Russia with that of, say, Ukraine or Estonia. Did not this historically naive—or even, to put it better, erroneous—political position disseminated by the mass media—and on Chechen territory too—exacerbate the massive violations of human rights at the very beginning of the military operations?

Chechnya's grief is great, but the pain of the rest of Russia is no less. History and time will put everything in its proper place. We grieve for the dead. And for those who allowed themselves to be poisoned by the venom of nationalism, and for those who in the performance of their duty find themselves there not of their own volition, and for the accidental victims of this tragedy.... We hope that today everyone has sufficient willpower not to compound this evil.

Academician Cited on Radioactive Contamination in Siberia

MM2701124995 Moscow *IZVESTIYA* in Russian
26 Jan 95 p 3

[Report by Sergey Agafonov: "Chelyabinsk's 'Mayak' Will Even Light Up the Pole"]

[FBIS Translated Text] Tokyo—The Japanese are more frightened than our people by what is happening in the nuclear city of Chelyabinsk-65. Only recently *IZVESTIYA* published a rather gloomy article headlined "Chelyabinsk's 'Mayak' More Terrifying Than Hiroshima." (issue No. 71). The KYODO News Agency has interviewed an eminent Russian ecologist, Academician Aleksey Yablokov—once again the subject is "Mayak."

The Russian president's former adviser on environmental questions noted in conversation with the Japanese that at present the degree of radiation contamination in the closed city of Chelyabinsk-65 exceeds the radioactive emission from Chernobyl. "Mayak," which has stood on nuclear watch for more than four decades, is still "shining" stubbornly today.

According to Academician Yablokov's account, the biggest cause of alarm today is the contamination by radiation of the subsoil waters which are gradually moving in the direction of "greater" Chelyabinsk, and which in a few years time will inject the poison into the Tobol River, and afterward the Ob River, which will carry radioactive "greetings" from "Mayak" to the Sea of Barents and finally to the pole. The Chelyabinsk radioactive hearth,

however, is by no means the only one in the Siberian wastes, according to the Russian scientist. The Yenisey River (which has been 'souled' by another closed city—Krasnogorsk-26) and the now-sovereign Yakutia-Sakha are also seriously contaminated with nuclear waste.

Pipeline Accidents Close Northern Oil Production

LD2601183995 Moscow ITAR-TASS in English
1822 GMT 26 Jan 95

[By ITAR-TASS correspondent Viktor Makarov]

[FBIS Transcribed Text] Usinsk (Republic of Komi) January 26 TASS—The majority of oilfields in northern oil and gas deposits in the Republic of Komi and the Nenetskiy Autonomous District of the Russian Federation have been closed.

The situation there became critical as a result of an accident on January 23 this year when a trunk oil pipeline stopped operating. This pipeline carried oil containing liquid from places of its extraction to the main pipeline located near the city of Usinsk for cleansing from underground waters and other admixtures.

Part of this oil pipeline from the Vozey oil deposit to the main structures has already outlived its operation term and was subject to replacement.

In August-September 1994 there were numerous ruptures in the pipeline as a result of which over 14,000 tons of oil were poured out and 64 hectares of the territory were contaminated. Two more accidents have taken place this year. During the latest one, on January 23, according to preliminary estimates, 300 tons of oil spread through a hole and 1.5 hectares of the territory were polluted. Now consequences of this accident are being eliminated and the old pipeline is under repairs.

In accordance with a decision by the Commission on Emergency Situations of the Komi Republic a new oil pipeline from Vozey to the main line was to be built by December 1, 1994 and put into operation before December 20. However, so far its construction has not been completed. The rectification of the territory contaminated with oil products is being carried out very slowly. Of 70 hectares of polluted territory only some 13 hectares have been cleaned.

The main reason behind this is the shortage of funds. Numerous appeals to various Russian bodies of power to render financial aid for the elimination of consequences of these pipeline accidents near Usinsk have brought no positive results yet.

To all outward appearances, the top priority task set by the Commission on Emergency Situations of the Komi Republic concerning the full rectification of the polluted territory before April 1, 1995 will not be resolved. In this event it is very probable that during oncoming spring floods oil products from the contaminated territories may reach the River Pechora and the Arctic Ocean.

South Korea To Help Russia in Nuclear Waste Processing

LD2601171495 Moscow ITAR-TASS in English
1423 GMT 26 Jan 95

[By ITAR-TASS diplomatic correspondent Vladimir Sointsev]

[FBIS Transcribed Text] Moscow January 26 TASS—South Korea is to assist Russia in radioactive waste processing in the Maritime Territory. The details were discussed at the bilateral consultations held in Moscow earlier this week, said Mikhail Kokeyev, First Assistant Director of the Russian Foreign Ministry's Department for International scientific and Technical Cooperation.

According to the official, the proposed assistance means not "mere financing" but supplies of South Korean equipment and measuring instruments to Russia.

Last year, a joint expedition of Russian, Japanese, South Korean and International Atomic Energy Agency (IAEA) officials inspected dumping grounds of Russian liquid radioactive wastes in the Sea of Japan. A second stage of this expedition is to take place shortly, the Foreign Ministry official said.

The consultations on liquid radioactive wastes were held within the framework of the first meeting of the joint commission supervising the implementation of the inter-governmental agreements on cooperation in environment protection and on protection of birds of passage. These agreements were signed during last June's official visit to Moscow by South Korean President Kim Yong-sam.

Russia and South Korea outlined 11 projects for cooperation in various spheres, including in exchange of information on protected territories and their administration, in protection and study of migration routes of Russian and South Korean birds of passage and others, according to Petr Bogdanov, head of the Foreign Relations Department of the Russian Ministry for Environmental Protection and Natural Resources. However, he found it difficult to assess the scope of each project so far. According to him, the main result of the meeting is that Moscow and Seoul have set to specific long-term cooperation in environmental protection.

More on Latest Usinsk Pipeline Burst

MM2601143195 Moscow IZVESTIYA in Russian
26 Jan 95 p 1

[ITAR-TASS report: "New Rupture of Oil Pipeline Near Usinsk"]

[FBIS Translated Text] The oilfields of the northern oil and gas deposits of the Republic of Komi and Nenetskiy Autonomous Okrug are threatened with total shutdown as a result of a pipeline rupture. This occurred on Monday evening at kilometer 31 on the old pipeline running from Vozey, which is within the oilfield, to the headworks near the city of Usinsk. The oil trunk pipeline along which the

oil extracted from the ground is transported to the main installations to be refined was shut down.

According to preliminary information approximately 300 tonnes of oil was spilled. The area of pollution is roughly 1.5 hectares.

An emergency repair team was dispatched to the scene of the incident, and began work to repair the rupture. This is already the second accident this year on the old pipeline running from Vozey to the headworks.

Minister Describes Pollution in Chechnya, Komi, Elsewhere

LD3001140695 Moscow ITAR-TASS in English
1308 GMT 30 Jan 95

[By ITAR-TASS correspondent Veronika Romanenkova]

[FBIS Transcribed Text] Moscow January 30 TASS—Despite the production slump, environmental pollution in Russia still remains inadmissibly high, Viktor Danilov-Danilyan, Russian minister for environmental protection and natural resources, said in his remarks at a meeting of the ministry of collegium on Monday.

One-quarter of national enterprises increased the amount of harmful substances discharged into the atmosphere last year. Mobile sources (transport vehicles) remain the main polluters of the air. Their exhaust fumes released 23.9 million tonnes of noxious substances into the air last year.

Russian factories accumulated 122 million tonnes of toxic waste in 1994. Inspections conducted by the ministry revealed more than 1,000 waste dumping grounds which are not up to sanitary and ecological requirements, the minister said.

Soil degradation has become precarious, making 1.5 million hectares of farmland unfit for agricultural cultivation last year alone, the minister pointed out.

Quite a deplorable ecological situation has developed as a result of military actions in Chechnya where surface waters have been polluted, a large amount of harmful substances are released into the atmosphere, specifically due to "uncontrolled burning of petroleum products, with benzopyrene being particularly hazardous".

Danilov-Danilyan believes that the most important as of now is not only to secure state financing of ecological programmes but also to adopt legislative acts.

The minister is of the opinion that many norms should be tightened. Last year criminal proceedings against polluters were instituted throughout Russia in 22 cases, although "in Komi alone a much larger number of people should have been punished." Only 19 cases out of 1,500 instances of violation of game reserve regulations were referred to investigating agencies, he said.

In this connection the minister emphasised that the Komi oil spill is only one of dire warning signals about ecological disasters which may happen in Russia if the worn-out

equipment is not repaired, if ecologically clean technologies are not introduced, and if environmental protection measures are not funded.

Chechnya Clean-Up Will Cost 'Hundreds of Billions'

MM3001110595 Moscow RABOCHAYA TRIBUNA
in Russian 28 Jan 95 p 1

[ITAR-TASS report: "Nature Will Also Have To Be Treated"]

[FBIS Translated Text] To the trillions of rubles that will be required to restore Chechnya's economy must be added hundreds of billions more to restore the health of the environment. Top-priority capital investments for this purpose alone will total at least 16 billion rubles, the press service of the Russian Ministry of the Environment and Natural Resources has reported.

Pechora River Cannot Be Contaminated Following Oil Spill

LD2701200195 Moscow INTERFAX in English
1912 GMT 27 Jan 95

[FBIS Transcribed Text] Syktyvkar, Jan 27 (PIA-INTERFAX)—There is no question of contaminating the Pechora river with oil-containing liquid as a result of the January 23 accident on the oil pipeline Vozey-Golovniye Sooruzheniya in the Komi Republic. This statement was made by the head of the republic's Emergency Situations and Civil Defense Committee, Anatoliy Nuykin, in an interview with the Petroleum Information Agency (PIA) Friday.

According to Nuykin, about 300 tonnes of liquid containing a certain amount of oil were spilt over 1.3 hectares around the pipeline belonging to the joint-stock company Komineft on January 23. However, 95% of the liquid went into swamps and, therefore, could not contaminate the Pechora.

A deputy head of the Environmental Protection Department of the Komi Natural Resources and Environmental Protection Ministry, Viktor Kozlov, confirmed this information. He remarked that "spilt oil ices within two or three minutes" in wintertime. The after-effects of the accident were localized, he added.

Ministry Says Komi Oil Cleanup Timetable 'Disrupted'

LD3101181095 Moscow INTERFAX in English
1738 GMT 31 Jan 95

[FBIS Transcribed Text] Moscow, Jan 31 (PIA-INTERFAX)—Russia's Natural Resources Ministry believes that the timetable for cleaning up the accident which occurred last summer-autumn in Komi as a result of holes on the oil-pipeline Vozey-Usink (Golovnye Sooruzheniya) has been disrupted.

Head of the ministry Viktor Danilov-Danilyan expressed this opinion in a document addressed to the First Deputy

Prime Minister Oleg Soskovets, sources in the ministry reported to the PETROLEUM INFORMATION AGENCY (PIA).

According to his estimates, 16% of the contaminated territory, about 64 hectares, were cleared by January 10. The whole territory should be cleansed by April 1, Danilov-Danilyan noted.

Danilov-Danilyan points out that final term of construction of the new pipeline Vozei-Usinsk was postponed on February 1, 1995 (the initial date - December 1, 1994) without coordination with Komi's Environment Department.

To this effect Russia's Natural Resources Ministry asks the government to oblige the Fuel and Energy Ministry and Komi administration to ensure putting into operation the pipeline in the near future and to conclude cleansing of the polluted territory by the planned date.

According to different sources, a total of 79,000-103,000 tonnes of oil were spilled as a result of the summer-autumn accident on the pipeline belonging to the joint stock company Komineft.

There was another leakage of oil late this month (not more than 300 tonnes). After that, the pipeline Vozei-Golovnye Sooruzheniya was put out of operation, chief engineer of Komineft Yuriy Baidikov reported to the PETROLEUM INFORMATION AGENCY.

No Radioactive Leaks Expected in Chelyabinsk-65
LD3101173195 Moscow Radio Rossii Network
in Russian 1100 GMT 31 Jan 95

[FBIS Translated Text] The Japanese agency Kyodo Tsushin has reported that a dangerous situation has arisen at the storage facility for liquid radioactive waste at the Mayak industrial complex in the town of Chelyabinsk-65. According to the agency, the storage facility could burst and subsequently contaminate a large area. We asked Georgiy Kaurov, head of the information directorate at the Atomic Energy Ministry, to comment on this report.

After pointing out that such reports appear in Japanese media at regular intervals, he then said: Experts at the Atomic Energy Ministry and the industrial complex Mayak carefully analyze the situation every year. They analyzed it this year as well. They do not foresee any unexpected leakage of radioactive water in the region. At the same time it is evident that the storage facilities contaminated by radioactive elements are being filled up, and we have to decide what we are going to do in future. But this year we are not expecting any leaks. There have been proposals to build a unit at the Beloyarsk nuclear power station to evaporate [vyparivat] the water from the reservoirs. Local authorities support this idea, but ecological and public organizations are against it. And every year is the same thing: no construction but a lot of emotions. At some point emotions will have to stop and the water will start flowing into rivers. We must take measures.

Komi Republic Oil Pipeline To Be Dismantled
LD2701200695 Moscow INTERFAX in English
1912 GMT 27 Jan 95

[FBIS Transcribed Text] Ukhta, Russia, Jan 27 (PIA-INTERFAX)—An old oil pipeline in Russia's Komi Republic is going to be dismantled after bursting three times in the last few months, a senior oil company executive said.

Yuriy Baydikov from the Komineft company, which runs the 720-millimeter Vozey-Golovnye Sooruzheniya pipeline, described the last accident of January 23 as relatively insignificant. The oil that leaked spread over an area of only about 40-60 meters, although the deep snow and the marshy local terrain make it unclear how much of it came out, some estimates putting it at 300 tonnes, the executive told the Petroleum Information Agency.

Komineft decided to dismantle the run-down pipeline and speed up the launching of a new pipe laid alongside it. The company will start cleaning the 55-kilometer pipe Saturday morning, Baydikov said. Most of the company's wells have been suspended and will not resume work before the new pipeline goes into operation, he said.

After putting the new line into use, Komineft will get down to cleaning the area near Usinsk affected by the two previous accidents of last summer and autumn, where the main danger is that oil spilled out during the accidents can get into local rivers when the snow begins to melt in the spring.

Next autumn another oil pipeline is due to come into service, the 135-kilometer Kharyaga-Golovnye Sooruzheniya, Baydikov said.

Environmentalists regard the latest accident as far less serious than the preceding two, when, according to various sources, the breached pipe leaked out between 79,000 and 103,000 tonnes of oil.

Environment Minister Not Surprised by New Komi Oil Accident

LD2701200495 Moscow INTERFAX in English
1912 GMT 27 Jan 95

[FBIS Transcribed Text] Moscow, 27 January. INTERFAX—Viktor Danilov-Danilyan, Russia's minister for the environment and natural resources, sees "nothing surprising" about the latest accident along the Vozey-Golovnye Structures pipeline in Usinsk (Komi Republic, northern Russia) on January 23.

The minister told Interfax such accidents "were to be expected at any time since the pipes should have been written off ages ago, but were still being used."

Some 300 tonnes of oil are thought to have escaped from the pipeline, which has burst for the third time since last fall. A special UN commission which inspected the area at the time said the volume of oil leakage ranged from 14,000 to 103,000 tonnes.

Danilov-Danilyan said efforts to clean up the mess caused by the first accident were "very disappointing." Oil was

being burned, he said, and that was all, "and only where pools had formed." Most of the oil, he said, had spread along river banks, where it had been left by flooding, and had then subsided evenly over "huge areas."

The minister said "no effort" was being made to dissolve the oil slick, which posed an "immense environmental threat." He also said a program drafted to eliminate the consequences of the accident had been disrupted due to underfunding.

"If extraordinary measures are not undertaken by spring, the oil may enter rivers and that will be more than a serious matter," Danilov-Daniliyan said.

An analysis of waters in the Pechora River, he continued, had revealed that the "concentration of petroleum products has not reached the maximum permissible level." He also said he possessed unconfirmed information that there had been another accident along the pipeline "a year before the official one," but that it had been kept quiet.

On Evaluating Environmental Impact

Russian Federation Statute Issued

95WN0077A Moscow ROSSIYSKIYE VESTI
in Russian 8 Dec 94 p 4

[Russian Federation Ministry of Environmental Protection and Natural Resources (Minprirody) Statute No 695, registered 22 September 1994; appended to Minprirody Order No 222, 18 July 1994: "On Environmental Impact Assessment in the Russian Federation"]

[FBIS Translated Text]

1. General Principles

- 1.1. An environmental impact assessment (EIA) is a procedure by which the environmental requirements of Russian Federation legislation are taken into account during preparations for and adoption of decisions regarding society's social and economic development.
- 1.2. An EIA is organized and carried out for the purpose of defining and adopting necessary and sufficient measures to prevent possible environmental impact and social, economic and other impact connected with them which are unacceptable to society as a result of commercial or other activities [subsequently to be referred to as "impact"].
- 1.3. Conducting of an EIA during preparation of documentation justifying the development of various types and facilities for commercial and other activities, as enumerated in the appended list, is mandatory. The appropriate time for conducting (or continuing work already begun) an EIA for facilities and types of activity not included in the mandatory list is to be determined by the executive organs of components of the Russian Federation based on recommendations from regional organs of the Russian Ministry of Environmental Protection and Natural Resources. In the event of disagreement on the part of an executive organ of a component of the

Russian Federation with a proposal from a regional organ of the Russian Ministry of Environmental Protection and Natural Resources, the dispute may be resolved by a court of arbitration according to established procedure.

- 1.4. For facilities and types of activities not included in the aforementioned list, or in cases in which EIA work already begun is halted, the customer/developer is required to include in the justification documentation a brief finding on the permissibility of the proposed environmental impact.
- 1.5. The product of an EIA is a customer finding regarding the permissibility of the impact of an intended activity on the environment. Planning-related and/or other decisions contained in the justifying documentation must be developed with consideration for the various types of possible impact from implementation thereof.
- 1.6. Information regarding the condition of the environment used to conduct an EIA is to be prepared with the aid of methods and means of measurement which meet the standards of Russian Federation legislation and normative documents regarding standardized measurement.
- 1.7. The justifying documentation must be presented by the initiator/customer for state environmental review in accordance with the Russian Federation law "On Environmental Protection (Section 5). Justifying documentation pertaining to the types of activities and facilities listed in the attachment to this Statute will not be accepted by the Russian Ministry of Environmental Protection and Natural Resources for state environmental review without the findings of an EIA attached.

2. Areas of Applicability

- 2.1. An EIA must be organized and carried out during preparation of the following types of justifying documentation:
 - (1) concepts, programs (including investment programs) and plans for the social and economic development of entire industries and regions;
 - (2) plans for the comprehensive use and protection of natural resources;
 - (3) city planning documentation (general city plans, detailed planning designs and layouts, etc.);
 - (4) documentation regarding the creation of new equipment, technologies, materials and substances;
 - (5) pre-planning justifications for investment in the construction of, or technical and economic justifications and/or plans for the construction of, new or renovation, expansion or refitting of existing commercial and/or other facilities and complexes.

2.2. When commercial and other decisions are being prepared which will involve the development of several types of justifying documentation, an EIA must be carried out in stages, with consideration for the individual types, sources and levels of the intended activity's environmental impact.

3. Requirements Pertaining to Environmental Impact Assessment Activities

3.1. In order to identify and take essential and adequate measures to prevent possible unacceptable impact, in the process of analysis and assessment of the environmental impact of an intended activity the developer of justifying documentation must consider the following:

- (1) the purposes of realizing the plan or proposed project;
- (2) reasonable alternatives to the intended activity;
- (3) the characteristics of the planning-related or other proposals in the context of the existing environmental situation in the area in question, with consideration for previous decisions regarding that area's social and economic development;
- (4) information regarding the state of the environment in the area slated for realization of the intended activity, within appropriate spatial and temporal boundaries;
- (5) the possible impact of realizing the intended activity and alternatives to it;
- (6) measures which can be taken to prevent socially unacceptable impact stemming from implementation of the decisions made;
- (7) proposals regarding development of a program to monitor realization of the decisions being prepared and a plan for post-project environmental analysis.

3.2. The procedure for conducting an EIA must be established by the Russian Ministry of Environmental Protection and Natural Resources during preparation of each type of justifying documentation listed in Section 2 of this Statute.

4. Obligations of EIA Participants

4.1. When conducting an EIA:

- (1) the initiator/investor provides financing for all studies and other work required to conduct the EIA;
- (2) the investor/customer organizes the conducting of an EIA in the process of preparing justifying documentation;

provides broad oversight (public hearings) of proposals regarding possible realization of the intended activity in a specific area, except for

special-purpose facilities, information regarding which requires confidentiality;

- (3) the developer (within the limits of his competence): carries out the EIA;

considers environmental conditions and takes them into consideration during preparation of justifying documentation.

4.2. The executive organs of a component of the Russian Federation during their preparation and approval of a decision to sanction (permit) realization of the intended activity:

- (1) participate in consideration of the justifying documentation;
- (2) issue (or approve) justified environmental conditions and requirements for further study of proposals regarding realization of the intended activity;
- (3) make the decision to sanction realization of the intended activity, on the condition that the environmental requirements of Russian Federation legislation are observed, and there is a clear understanding of the possible impact of such activity.

5. Public Hearings

5.1. Interested public associations and non-governmental [passage illegible] public hearings or discussions in the mass media of information in planning-related and other proposals concerning the intended activity, for the purpose of making their own assessment of:

- (1) the methods used to analyze and project the environmental impact of the intended activity;
- (2) the truthfulness of the EIA findings presented;
- (3) the completeness and adequacy of measures proposed in the justifying documentation to prevent negative impact.

5.2. The customer will, in conjunction with the developer, conduct public hearings or discussions in the mass media of information in planning-related and other proposals for the purpose of:

- (1) providing information on the intended activity or the planning proposals under development;
- (2) identifying and listing all possible types of negative impact from realization of commercial and other decisions;
- (3) seeking out mutually acceptable alternatives which make it possible to prevent negative impact from implementation of the intended activity.

5.3. Public hearings and discussions shall be organized and carried out:

- (1) at the federal level, whenever the advantages and disadvantages of implementing the decision in question are nationwide in nature;
- (2) at the local level or the level of a component of the Russian Federation, whenever the advantages and disadvantages of realization of the intended activity extend only to a specific geographic region within the boundaries of the component of the Russian Federation in question.

6. Liability for Violations

The initiator/customer of the intended activity and the developer of the justifying documentation to develop that activity in accordance with the Russian Federation law "On Environmental Protection (Section XIII)" bear liability for:

- (1) failure to abide by regulations governing the conducting of an EIA;
- (2) violation of procedure for assessment of environmental impact when preparing justifying documentation;
- (3) submission of incomplete EIA findings or incorrect information regarding same.

Order by Environment Minister

95WN0077B Moscow ROSSIYSKIYE VESTI
in Russian 8 Dec 94 p 4

[Order No 222, issued 18 July 1994 by D. I. Danilov-Danilyan, Russian Federation minister of Environmental Protection and Natural Resources: "On Approval of Statute on Environmental Impact Assessment in the Russian Federation"]

[FBIS Translated Text] In order to implement Article 41 of the Russian Federation law "On Environmental Protection" (Section VI), to prepare for performance of the Russian Federation's obligations stemming from the signing of the international convention "On Environmental Impact Assessment in the Trans-Border Context," and in compliance with the "Statute on the Russian Federation Ministry of Environmental Protection and Natural Resources," I hereby order:

approval of the "Statute on Environmental Impact Assessment in the Russian Federation" (appended) as agreed upon with affected Russian Federation ministries and agencies and the executive organs of components of the Russian Federation.

[Signed] V. I. Danilov-Danilyan, Minister

List of Facilities Involved

95WN0077C Moscow ROSSIYSKIYE VESTI
in Russian 8 Dec 94 p 4

[Attachment to the Statute on Environmental Impact Assessment in the Russian Federation: "List of Types of and Facilities for Commercial and Other Activities, During Preparation of Justifying Documentation for Construction of Which Environmental Impact Assessment Is Mandatory"]

[FBIS Translated Text]

1. Enterprises producing oil with a capacity of 500,000 metric tons per year or greater.
2. Enterprises producing natural gas with a capacity of 500 million cubic meters per year or greater.
3. Oil refineries and facilities for the gasification or liquefaction of coal or bituminous shales with an output of 500 metric tons per day or greater.
4. Thermal electric power stations and other combustion facilities with a capacity of 300 megawatts or greater, as well as atomic electric power stations and other facilities with nuclear reactors (with the exception of research facilities for the production or conversion of fissionable and breeder materials, the capacity of which does not exceed 1 kilowatt of constant thermal load).
5. Ash dump sites from thermal electric power stations and boiler plants producing 100,000 cubic meters of ash per year or more.
6. Facilities for the extraction, processing or conversion of asbestos and asbestos-containing products with an annual capacity of:
 - (1) asbestos cement products20,000 metric tons or greater;
 - (2) abrasive materials50 metric tons or greater;
 - (3) other types of asbestos uses200 metric tons or greater.
7. All types of enterprises in the chemical industry.
8. Cellulose and paper production with an output of 200 metric tons per day or greater.
9. Large warehouses for the storage of 50,000 cubic meters or more of petroleum, petrochemical or chemical products.
10. Microbiological production facilities.
11. Large facilities for the manufacture of building materials (cement, glass, lime, and ceramics).
12. Large installations for blast-furnace and open-hearth production facilities in the non-ferrous metals industry:
 - (1) for the sintering, firing and calcination of iron ore in facilities with a capacity of 1 million metric tons per year or greater;
 - (2) all coke ovens;

- (3) installations for the production of pig iron and unrefined steel with a capacity of 1 million metric tons per year or greater;
- (4) facilities for the production of steel from scrap with a capacity of 200,000 metric tons per year or greater;
- (5) facilities for the processing of heavy non-ferrous metal ores with a capacity of 100,000 metric tons per year or greater;
- (6) facilities for the production, extraction or processing of non-ferrous metals, compounds thereof or other alloys made by thermal, chemical or electrolytic methods, with a capacity of 100,000 metric tons per year or greater.

13. Large facilities and enterprises engaged in ferrous and non-ferrous metallurgy:

- (1) pelletizing and sintering of iron ore in facilities with a capacity of 1 million tons per year or greater;
- (2) all coke ovens and byproduct coke industry facilities;
- (3) facilities for the production of cast iron and steel with a capacity of 1 million metric tons per year or greater;
- (4) facilities for processing the ores of heavy non-ferrous metals, or for the production, extraction or processing of ferrous metals, compounds thereof or other alloys by means of thermal, chemical or electrolytic methods, with a capacity of 100,000 metric tons per year or greater.

14. Facilities for the production, enrichment or regeneration of nuclear fuel, facilities and/or disposal sites for the disposal and reprocessing of radioactive wastes, munitions and reactor sections; facilities for radioactive isotope production.

15. Sites employing nuclear detonation technologies.

16. Large accelerator complexes used to produce intensive beams of elementary particles and high-energy nuclei.

17. Medical centers which use radioactive isotopes on a large scale in diagnostic and therapeutic procedures.

18. Space ports, airports, aerodromes and other facilities and/or fields for the testing, utilization, destruction or burial (or underwater disposal) of chemical weapons and rocket fuel.

19. Facilities and/or disposal sites for the thermal or chemical reprocessing, utilization and burial of non-radioactive wastes.

20. Construction of roads, highways, long-distance mainline railway grades and airports with principal runways 1,500 meters in length or longer.

21. Subways.

- 22. Oil and gas pipelines with pipes 600 millimeters in diameter or greater.
- 23. Ports, terminals, ship docks, international ferry crossings and internal waterways and ports for domestic shipping which allow passage by vessels of 1,350 metric tons displacement or greater.
- 24. Large dams 15 meters or higher, reservoirs with a surface area of 2 square kilometers or greater, major canals, water drainage systems, and large urban water supply systems.
- 25. Facilities for the treatment of industrial and municipal waste water with an annual capacity of more than 5 percent of the affected watershed's total flow.
- 26. Underground water collection systems with a water intake volume of 10 million cubic meters per year or more.
- 27. Large-scale mining, extraction or enrichment of metal ores and coal:
 - (1) enterprises for the mining, extraction or enrichment of iron ore on site with a capacity of 1 million metric tons per year or greater;
 - (2) enterprises for the mining, extraction or enrichment of non-iron ore on site with a capacity of 100,000 metric tons per year or greater;
 - (3) enterprises for the mining, extraction or enrichment of coal on site with a capacity of 100,000 metric tons per year or greater;
 - (4) large-scale mining of non-ore minerals, especially in bodies of water.
- 28. Oil and gas exploration or production, and licensed types of geological survey work.
- 29. Clearcutting of timber on areas greater than 200 hectares, or any timber cutting on areas of more than 20 hectares when forested land is converted into non-forest land for purposes not connected with forestry or other forest uses.
- 30. Large livestock complexes with the following capacities:
 - (1) pigs.....30,000 head or more;
 - (2) cattle fattening pens.....2,000 head or more;
 - (3) dairy farms.....1,200 head or more.
- 31. Wild animal breeding complexes.
- 32. Poultry farms for 400,000 laying hens or 3 million broilers or more.
- 33. Facilities used for commercial and other purposes and located within specially protected areas, the operations of which are not connected with those areas' established uses.

Greenpeace Opposes Expansion of Nuclear Storage in Urals

LD0102171795 Moscow Radiostantsiya Ekhov Moskvy in Russian 1300 GMT 1 Feb 95

[Passages within quotation marks recorded]

[FBIS Translated Text] An ecological feasibility study has begun regarding the project for construction of a new storage facility for radioactive materials at Mayak Association in Chelyabinsk Oblast. Here is Yevgeniya Novikova with the details:

Novikova: The radioactive situation in the South Urals is unfavorable owing to Mayak's activities. This is the opinion of ecologists. Storage construction will not worsen the situation, Georgiy Kaurov, head of the press service of the Ministry of Atomic Energy believes.

Kaurov: "To build storage is a noble cause. Nuclear ammunition is being dismantled. Fissionable materials will make their appearance, which have to be stored. New storage has to be built, which has to meet all the safety requirements. We are sending to Mayak several hundred tonnes of spent fuel from Russia—from atomic submarines and reactors."

Novikova: In addition spent fuel is sent there from nuclear power stations in Hungary, the Czech Republic, Slovakia, Bulgaria, and Finland. Greenpeace ecologists are opposing the expansion of the volume of storage in the South Urals, program coordinator Dmitriy Talmaz says.

Talmaz: "It is one thing when the last lot of fuel and waste has to be processed, and after that the enterprise is closed down and that is that, but it is a different matter when it is a question of storing material from long-term facilities that will produce these wastes for many years to come."

Expert Examines Ecological Crisis, Causes
95WN0080A Moscow PRAVDA in Russian 25 Jan 95 p 3

[Interview with academician Aleksandr Leonidovich Yanshin, conducted by Marina Eratova: "Nature Will Have To Pay All the Same"]

[FBIS Translated Text]

Eratova: Aleksandr Leonidovich, how does the current ecological map of Russia look? Are black clouds gathering over Russia?

Yanshin: We are living in a difficult time, economically, politically and ecologically. Humanity, whose population began to increase rapidly in the latter half of the 20th century, has so polluted the environment with wastes from industry and agriculture that nature has begun to take vengeance on human beings. We are beginning to see diseases linked to our poisoning of the environment. In some countries we have also seen movement in a positive direction, with changes in technology, improved treatment of industrial waste, and the beginning of a transition to new types of agricultural chemicals that are non-toxic to human beings.

Yet in our country, due to our restructuring, our lack of regulation and the chaos of our lives, we have ignored the demands of modern ecology. In this country, oddly enough, industrial output has declined sharply yet environmental pollution continues to increase.

Eratova: But that seems like a paradox. How can that be?

Yanshin: All the waste from the small, newly-established enterprises are being released into the atmosphere or dumped into rivers without any treatment whatsoever. We are seeing pollution of small rivers on a massive scale. I recently visited Yaroslavl to attend a conference of ecologists in the upper Volga watershed. We discovered a large number of very severe cases there. For example, upriver from the location of the Volga water intake from which all of Yaroslavl draws its drinking water, three large plants are discharging waste water virtually untreated. That discharge contains cadmium, arsenic and various heavy metals. All these enter the drinking water supply only slightly diluted.

There are experts who have pointed this out. But those people do not have any control over the enterprises in question, or any money.

Another example: we have an official standard for exhaust emissions from a Volga automobile, with 14 grams of emissions per kilometer traveled as the ceiling. Japan's parliament long ago set the standard for the same type of passenger cars at 2.5 grams, and a few years ago that standard was further tightened. The Japanese decided that it was not practical to retrofit the motors of all existing cars. So a few years ago we began seeing Japanese cars on roads in the Russian Far East. They were bought up cheaply by our sailors after they were banned on the streets of Japan.

And just look at what happens at places in Russia that have metal production. A majority of our metallurgical plants release various acids into the atmosphere along with water vapor. The problem is that in a majority of cases the coal they use contains a certain amount of sulfur in the form of ferrous sulfide. When that coal is burned, the sulfur is acidified by oxygen, and what forms are sulfuric acid vapors, which then mix with the humidity in clouds, turn into sulfuric acid, and fall to the ground in the form of acid rain. Nowadays everyone knows what that is.

Eratova: Can we avoid this?

Yanshin: Finland mainly uses the same coal, purchasing it from us. However, there they install a cylinder at the base of every smokestack which is somewhat larger than the stack diameter. This cylinder is full of crushed limestone. The sulfuric acid precipitates there, leaving only carbon dioxide, which is not harmful to humans. Once or twice a year they change the gravel, burying the old and replacing it with new.

We are not heeding innovation, and we do not want to spend money to improve and change technologies—the

projects are already built, the smokestacks draw properly, so who care if acid rains down? Maybe not right there, but somewhere nearby.

Eratova: Is this not the famous Russian state of chaos and indifference to our own health and the health of those around us?

Yanshin: In this case I would have to agree. It is precisely for this reason that we have many severe cases involving environmental hazards. You have probably heard about the massive number of recent cases of mushroom poisoning. For some reason ordinary mushrooms suddenly started causing severe poisoning. Eventually it was determined that they grew not far from metallurgical plants that were releasing zinc, cadmium and other heavy metals into the atmosphere. Mushrooms absorb all that, and anybody who tasted these "factory" mushrooms got a dose of harmful substances.

And another case. Russia is the country richest in natural gas reserves, and we have a supply of gas to last at least 300 years. Why do I mention that? Siberian gas does not contain sulfur or any environmentally harmful waste products, but our whole country is crisscrossed with gas pipelines. Of course, thus far we have had to develop power production using natural gas, considering the reserves we have and its low price, but in the future, 10-20 years from now when nuclear fusion becomes practical, we will gradually make the transition to that.

So, while acknowledging the great importance of nuclear power, I think that the decrees adopted recently on further expansion of nuclear power plant construction are completely wrong. This could result in effects that are new, very major, and very hazardous to human health.

Eratova: According to predictions by some scientists, in the future Russia could become a radioactive waste dumping ground.

Yanshin: We built many nuclear power plants abroad, in Czechoslovakia, Romania, Hungary, Poland and Bulgaria, and our obligations to those countries—obligations which we assumed of our own accord, incidentally—include the stipulation that all wastes be disposed of in our territory. Otherwise they would not have ordered the nuclear power plants from us.

Eratova: And where are we burying all of it?

Yanshin: We have not solved that problem yet, once again due to our negligence. Yet in Sweden a radioactive waste storage area already exists around one of the nuclear stations on the Baltic Sea. At a depth of 50 meters in solid granite there is a huge chamber containing five basins, each 20 meters square and filled with distilled water. Lead containers of radioactive wastes are placed in these basins so that nothing will corrode the lead. But they do not even consider that enough. Therefore this is the starting point of a sloping tunnel that leads out under a small granite island in the Baltic Sea to a depth of 500 meters.

At the end of this tunnel a similar chamber will be built and kept empty for one year to see if even a drop of Baltic Sea water can penetrate it. And when they are certain that the storage area is completely isolated, then all the basins full of radioactive waste will be moved into identical basins, also filled with distilled water, located at that depth in solid granite. Afterwards the entire tunnel will be filled in. That is what I would call a radioactive waste storage facility in well-isolated solid rock.

Outside of Podolsk a certain portion of our radioactive waste in lead containers is being buried in soil at a depth of 40 meters. Sooner or later water will begin to carry radiation away from the site. And there are discarded reactors from our nuclear submarine fleet simply lying on the surface on the Kola Peninsula...

Eratova: Aleksandr Leonidovich, what are the most environmentally damaged regions of Russia?

Yanshin: Those regions include all major cities, including Moscow, where there is a large amount of vehicular traffic and industrial enterprises located within city limits. Just look out toward Moscow's Krestyanskaya Zastava district sometime. Brown, green, yellow and orange smoke rises from the stacks there, and in that smoke you could find the entire periodic table of elements.

Another of our worst regions is the Kuznetsk Basin. In geographical terms it is a trough, closed in by mountains on every side, with a single opening to the northwest. This trough is not ventilated by winds, and all the emissions from the coke ovens and the metallurgical plants collect there. And all these enterprises are old and in need of resiting, but once again that is a problem for our broken-down economy.

And there is Krasnoyarsk and surrounding areas, with their huge chemical plants and enterprises producing radioactive materials. I would call these the worst regions in Russia, environmentally speaking. On the whole, you can find some negative ecological conditions virtually everywhere today.

Eratova: But what are people to do if they live next door to those smokestacks and have to breathe those smells every day? As we have seen, the system of fines levied on plants is not effective—it's easier to pay the bill than to replace all the equipment.

Yanshin: At the start of perestroika a whole program was developed to move the factories that are releasing all this toxic smoke out of Moscow. But the program was never implemented. Now it is hard to get anything done because of the events that have occurred in the Caucasus. War, while taking human lives, also takes a great economic toll, eating up billions of rubles and leaving that much less for health, science and ecology. That is to say, we are in a helpless position.

Eratova: Is economic decline the only thing to blame for the environmental crisis in Russia? Are not Russians squandering their riches, including rich lands, in hopes of reaping a generous bounty from nature?

Yanshin: As harsh as it may sound, in the past we didn't give a damn about anything. For example, in Bratsk, on the Angara River, there is an aluminum plant. When the aluminum oxide is separated out in a molten mass, the vapors that rise into the air are not sulfuric acid, they are hydrofluoric acid, which is stronger than sulfuric acid. And the taiga has been killed for tens of kilometers around Bratsk—all the trees stand there dead. When I asked those responsible for this what they were doing about it, I got a typical answer: that is not our department, we don't deal with forestry.

Eratova: Nowadays we hear a lot about ecology, about those fighting to save nature, and various societies established to protect the environment, including the Greens. Many people are waging the struggle, but is it having any effect?

Yanshin: Clearly, all this is still not enough. As for the Greens, I doubt that there is any need for a political party like that. The more parties there are, the less gets done. But the environmental movement and environmental education definitely do need to be developed, and I hope that will happen. Because another generation must grow up to replace the one we have now, a generation of people who understand that developing society in a purely technogenic way is a dead end that will lead to the death of humanity. Unfortunately, environmental education is still very poorly developed in this country. In Moscow there is only one higher educational institution—the University of Friendship Among Peoples—that has an ecology department. But we need for school children to have an understanding of environmental goals.

Eratova: But do you not agree that until we have proper laws, all the declarations, admonitions and movements will go nowhere?

Yanshin: Laws are needed. But it is even more important for the laws we already have to be observed. The problem is that there are already laws out there, but no one is abiding by them.

Eratova: Can you give me an example?

Yanshin: Certainly. The law on protection for nature preserves, just in terms of maintaining them in a state of preservation. Just in recent years we have begun seeing the extermination of protected wildlife in preserves. Both because we do not have the money to provide the necessary security, and because forest rangers' pay is miserably small, forcing them to let poachers into the preserve for a fee, just to support their families.

Right now—just imagine this!—the American public is concerned over the future of the Ussuri tiger, because there are only about 60 left in nature preserves. And that is precisely where they are being wiped out. This is because oriental medicine requires the tiger's "healing" liver, gall bladder, claws, whiskers—whatever. Poachers sell the tigers to Korea and China piece by piece.

Ussuri tigers are in danger of extinction, just like the already-extinct Central Asian tiger.

Eratova: Have there been any successes by the Russian environmental movement?

Yanshin: We have managed to restore the European bison population. They were completely wiped out in the Belovezh Grove during the war. After that they survived only in zoos. But now this species has been restored to the Prioksko-Terrasnyy Preserve.

The sable trade in Siberia had almost ceased to exist. But when the Kondo-Sosvenskiy Large Preserve was created on the eastern slope of the Northern Urals, and then the Baikal-Barguzinskiy Preserve on the other side of Lake Baikal, both with good conditions for protection of the species, sable reproduced there in such numbers that they have already begun spreading beyond the preserves' boundaries, and now the sable trade has revived.

So we have had some small successes. But in our current period of disruption even those successes could be nullified. I have a report indicating that recently two bison were killed in the Prioksko-Terrasnyy Preserve simply for their meat.

Eratova: From an environmental standpoint, what can we expect in the near future?

Yanshin: It is hard for me to draw an optimistic conclusion, perhaps because of the war in the Caucasus, which has worsened our decline. But at the same time I firmly believe that the situation is going to change. It is just that now this will be postponed to a more distant future than I could previously have imagined. I have faith in Russians' intelligence. The political, economic and moral ills that are presently gnawing away at our country's vitals will be overcome. As president of the Moscow Society of Nature Explorers—which, by the way, has been in existence since 1805—I can see that among young people there are many who long to live an honest life and to preserve nature and make our country beautiful, the kind of people who will put their country's interests ahead of their own. That also allows me to hope that people will come to the fore who will arrange our country's life differently. How? I would not dare make a detailed prediction, but definitely by destroying the sores that are presently attempting to destroy our society.

Security Council Hears Dire Environmental Safety Forecast

*MK0302134095 Moscow KOMMERSANT-DAILY
in Russian 3 Feb 95 p 3*

[Report by Mariya Smirnova, Aleksandr Koretskiy: "Russian Security Council on Environmental Safety. With 20 Years To Go Before Doomsday"]

[FBIS Translated Text] The veil of secrecy over the problem of environmental safety in Russia is gradually coming down. Something that was a secret just a couple of years ago (for instance, radioactive waste underground storage sites or locations of nuclear explosions) are currently becoming common knowledge. Yet, information on the sites of the elimination and dumping of chemical

weapons is still closed to the public. It was also absent from the materials of the Interdepartmental Commission of the Russian Security Council, which were presented to journalists at the Russian-American press center yesterday. But even the data that were disclosed to the public did produce an impression.

Commission Chairman Aleksey Yablokov, who presented the collection of materials, said that from now on such materials will be published on a regular basis. As for data on chemical weapons, the question of declassifying them will be raised at the next government meeting—under the Constitution, any environment-related information may not constitute a secret, including on this subject. The fact that the first package contains hitherto unknown data gives one grounds to hope that the data on programs for the development, testing, and dumping of chemical weapons will finally be made public.

Frankly speaking, the commission materials produced a depressing impression: the entire Russian territory—except for the areas of the Far North and the Far East (and even these not fully)—is contaminated by something. Be it radionuclides, or oil products, or pesticides, or heavy metals. In the country's central regions and also in the Urals and Western Siberia, virtually the entire soil cover is broken by operations of raw material, fuel, and energy producing enterprises.

The number of accidents in the process of transporting and storing various poisons and substances hazardous to human health is increasing at a disastrous rate. For instance, in eight months of 1993 alone, a total of 2,047 accidents during the transportation of "hazardous freight" were reported (against 1,032 in all of 1992). A total of 14 trains carrying various types of "hazardous freight" crashed within the same period. The most widespread violation of safety rules is the spillage of freight on the way to its destination: they account for 74 percent of all railway accidents.

On the whole, according to data cited by Aleksey Yablokov, there are two paramount threats to Russia's environmental safety: radiation, and the contamination of water and air by various substances. For instance, in 75 percent of water reservoirs the content of hazardous substances already considerably exceeds permissible standards. As regards radioactive wastes, in Russia they are thrown literally into a nearby ditch. At the same time, no one bothers with the problem of subsequent monitoring. Judging from the materials, the most disastrous situation has come about at the Defense Ministry. To be more precise, at the nuclear surface and submarine fleets. Certain submarines discharge spent fuel (sometimes together with nuclear reactors) overboard right "on the march." A similar situation is characteristic of "civilian nuclear facilities"—from 1991 to 1992 alone a total of 11 disruptions in the operation of nuclear electric power stations occurred, which was accompanied by the contamination of facilities and the discharge of radioactive products into the environment. Similar data on nuclear electric power accidents that occurred during the next two years are absent from the materials, however.

As for industrial accidents, Yablokov said that even incidents that tend to be portrayed as disasters (such as the oil spill in the Republic of Komi), in reality are "nothing by comparison with the actual scale of spills" at domestic pipelines. For instance, according to the most recent data, about 10 million tonnes is spilled annually out of 400,000 tonnes that pass through the pipelines. The reason for that is a lack of money to maintain the pipelines (currently only 1 percent of proceeds from oil sales is being allocated for this purpose, whereas in the West this figure amounts to up to 15 percent). In short, Russia is on the verge of an environmental catastrophe. In the view of Yablokov, unless emergency measures are taken, "we have at best 20 years left to live." [Article includes the following boxed passage]

Some data on the treatment of radioactive wastes on Russian territory (from the commission's materials)

- Over 1.5 billion Ki [expansion uncertain; possibly curies] of radioactive waste has been accumulated, of these about 700 million Ki are in special open reservoirs, thus posing the threat of uncontrolled spread.
- Wastes continue to be dumped into ditches that are subsequently simply covered with earth as they are filled. These actions are carried out without due safety feasibility studies, design plans and specifications, or authorization from oversight authorities.
- The system of radioactive waste treatment that is currently used at nuclear electric power stations was developed in the 1960's.
- Examination of out-of-service nuclear submarines in Severodvinsk has exposed the absence of monitoring by technical means. The state of some submarine's radioactive units by the time of decommissioning was judged to be impermissible.
- Six submarine reactors and the shield assembly of the "Lenin" nuclear ice-breaker with nuclear fuel were dumped into shallow bays of the Novaya Zemlya archipelago in the Karskoye Sea.

Ecologists Seek End of Yeltsin Decree on Radioactive Wastes

*LD0202215395 Moscow INTERFAX in English
1908 GMT 2 Feb 95*

[FBIS Transcribed Text] MOSCOW, Feb 2 (Interfax)—On Thursday Russia's Natural Resources Minister Viktor Danilov-Danilyan and Chairman of the interdepartmental commission on environmental security under Russia's Security Council Aleksey Yablokov called on Russian President Boris Yeltsin to annul his decree on support to the atomic industry and development of nuclear industry in the Krasnoyarsk territory. They have sent a written address to the president, Yablokov reported at a press conference in Moscow.

Yeltsin signed the decree on January 25. The decree permits the importing of spent nuclear fuel from other countries to the territory of the Russian Federation. It will

be delivered, in particular, to the RT-2 factory for reprocessing of the spent nuclear fuel situated in the Krasnoyarsk territory.

Yablokov asserts that the presidential decree "gravely" contradicts the legislation on environmental protection. In particular, it prohibits the importing of radioactive wastes and materials from other countries to Russia.

Komi Republic Oil Pipeline To be Dismantled

LD2701200695 Moscow *INTERFAX* in English
1912 GMT 27 Jan 95

[FBIS Transcribed Text] Ukhta, Russia, Jan 27 (PIA-*INTERFAX*)—An old oil pipeline in Russia's Komi Republic is going to be dismantled after bursting three times in the last few months, a senior oil company executive said.

Yuriy Baydikov from the Kominest company, which runs the 720-millimeter Vozey-Golovniye Sooruzheniya pipeline, described the last accident of January 23 as relatively insignificant. The oil that leaked spread over an area of only about 40-60 meters, although the deep snow and the marshy local terrain make it unclear how much of it came out, some estimates putting it at 300 tonnes, the executive told the Petroleum Information Agency.

Kominest decided to dismantle the run-down pipeline and speed up the launching of a new pipe laid alongside it. The company will start cleaning the 55-kilometer pipe Saturday morning, Baydikov said. Most of the company's wells have been suspended and will not resume work before the new pipeline goes into operation, he said.

After putting the new line into use, Kominest will get down to cleaning the area near Usinsk affected by the two previous accidents of last summer and autumn, where the main danger is that oil spilled out during the accidents can get into local rivers when the snow begins to melt in the spring.

Next autumn another oil pipeline is due to come into service, the 135-kilometer Kharyaga-Golovniye Sooruzheniya, Baydikov said.

Environmentalists regard the latest accident as far less serious than the preceding two, when, according to various sources, the breached pipe leaked out between 79,000 and 103,000 tonnes of oil.

Mercury Pollution Detected in Severnaya Dvina River

MM0302163595 Moscow *TRUD* in Russian 3 Feb 95 p 2

[Report by Pavel Zybin: "Mercury in the Severnaya Dvina River"]

[FBIS Translated Text] The waters of the Severnaya Dvina River within the borders of Arkhangelsk have been found to have an incredibly high mercury content by specialists of the Russian Federal Service for Hydrometeorology and Environmental Monitoring. Serious concern is caused by the fact that the mercury was discovered not far from the intake of the city's water supply. On 30 January the mercury content in the river's waters on the left bank was 740 times, and on the right bank 640 times, in excess of the

maximum permissible concentrations. A second sample taken 31 January indicated that the mercury concentration on the left bank had decreased to 154 times the maximum permissible level; no mercury was discovered on the right bank. Bearing in mind the fact that under existing standards waters should contain no mercury whatsoever, 7.4 micrograms per liter of water could be assessed as extremely heavy pollution, our editorial office was told by the Russian Federal Service for Hydrometeorology and Environmental Monitoring.

The subdepartments of the Ministry of the Environment and Natural Resources have not yet identified the source of the pollution, but it can already be said now that it is most likely to be the Arkhangelsk paper and pulp combine, which has production units that use mercury.

ARMENIA

Nuclear Power Station To be Relaunched in June-July

LD2701203895 Moscow *INTERFAX* in English
1912 GMT 27 Jan 95

[FBIS Transcribed Text] Yerevan, Jan 27 (INTERFAX)—The Armenian nuclear power station will be brought on-line again this June or July, Armenian Energy Production and Fuel Minister Miron Shishmanian said Friday.

According to Shishmanian, the station will start preparing for the launch as soon as the reactor's components are reconditioned, expected to be by late March.

Shishmanian said the station had initially been projected to be relaunched this April, but a number of financial and technical problems "somewhat postponed the date."

Shishmanian believes that bringing the station on-line again will enable the republic to halve the drain of water for energy production needs from Lake Sevan. If the environment of the biggest reservoir of potable water in the republic is unbalanced, "this will be fraught with disastrous consequences for the whole country."

The Armenian government had decided to relaunch the station's second reactor in 1993. Experts believe that the step will increase the republic's annual energy output by 40%. This will enable Armenia to extend the period during which electricity is supplied to homes from 2 to 10-12 hours a day.

ESTONIA

Details on Nuclear Waste Death Incident

95WN0053A Helsinki *HELSINGIN SANOMAT*
in Finnish 29 Nov 94 p C 3

[Article by Jorma Rotko: "Storage of Radioactive Waste in Estonia in Bad Shape"]

[FBIS Translated Text] The storage of radioactive waste in Estonia is in bad shape; a man died and a foster child fell ill because of a piece of tubing brought home from a nuclear dump that is popular with children.

The worse abuses were revealed when two metal thieves broke into a nearly unguarded nuclear waste storage site in Saku, about 25 kilometers south of Tallinn. Their booty included a shiny cylindrical object 1.5 x 3.5 [unit of measure not given] in size. Eleven days later the thief who had taken possession of the section of tubing and taken it to his home in the Kiisa housing area near Saku died. His 13-year-old foster son, Rain, is still in critical condition in the children's ward of the Mustamae Hospital in Tallinn, where he was taken a week and a half ago.

Seven other persons are under intensive observation. In all 60 persons have undergone medical examinations. Blood specimens from those under intensive observation have been sent to the United States for study, because in Estonia it is not possible to ascertain from the changes in the blood profile how large a dose of radioactivity the patient has received. Two Russian professors have offered Estonia assistance in performing possible bone marrow transplant operations.

The thumb-sized article that the men stole has a big kick, because it was radioactive Cesium 137. It was stored in a kitchen cabinet in the single-family home. The radioactivity level in the kitchen was 100 roentgens per hour and right next to the article 120 roentgens per hour. According to Estonian physicians, in six hours this would be a lethal dose.

"Although attempts have been made to get rid of the radioactive waste, it keeps turning up here and there because of the metal trading fever prevailing in Estonia," stated Jaan Saar, head of the radiation department of the Environment Ministry. On the other hand, Saar does not believe the calculations of Endel Lippmaa, a member of the Academy of Sciences, according to which tons of uranium disappeared from the Sillamae nuclear plant in connection with the collapse of the Soviet Union. Fuel for nuclear power plants as well as a small quantity of over 90-percent enriched uranium, which was of weapons grade, was manufactured at Sillamae.

There are no actual nuclear power plants in Estonia, but at the Paldiski naval base there are two small reactors with which submariners practiced. Their fuel rods have already been taken to Russia. The Russians intend to take away the "hot" parts of the reactors too when they go, but low-level radioactive waste dumps still remain in Paldiski.

Soviet Period Nuclear Graveyard

The Saku dump was built at the beginning of the 1960's. It was intended to store nuclear waste arising from civilian uses such as x-ray units. Sixteen concrete-lined "box graves" and one cylindrical tank for radioactive liquids were buried in the ground. Nine of the graves are already full and have been covered with concrete.

The Saku radioactive area was a standard Soviet project. Similar graveyards were also built in Latvia and Lithuania. Nowadays items more potent than those for which the dump was built to store have also been taken to Saku. Among other things the briefcase-sized object found in a warehouse of the state scrap metal company Emex, next to which a radiation level of over 200 roentgens per hour was measured, was taken there.

The Estonian security police have already ascertained that the item that proved fatal for the man from Kiisa was stolen for sure from Saku on 21 October. The man at first kept it in his coat pocket and then took it to the kitchen in his house. Apparently he did not have a clue as to the consequences of radiation exposure.

In the Saku community and Kiisa people know well that there is a nuclear graveyard in the forest, but that is the extent of the knowledge. In the Soviet period radioactivity was a state secret about which the rank and file did not need to know anything. Even all the men sent to Chernobyl did not know what was involved in the nuclear plant disaster, but thought rather that they were putting out a larger than usual conflagration.

Access to the Atomic Waste Heap Is Easy

It is easy to get in and rummage around Saku's nuclear graves. It is sufficient to make a hole in the 1.5-meter-high barbed wire fence and walk in. It does not always require a lot of effort, because the fence encircling the 72 hectare area has already fallen to the ground in many places.

There is a watch hut at the gates of the road leading to the area. Kalju Allak, who has guarded the area for 24 years already, sits there. He has no relief at present nor any electronic surveillance equipment. "It is a large area. If someone attempts to go over the fence, I do not necessarily know anything about it. In winter one can see from the tracks in the snow that someone has passed," Allak said. According to him the neighborhood school boys frequently come into the area to see if anything interesting can be found.

The watch hut's only surveillance equipment is a black box installed in the wall in the Soviet period in which there is a ringer resembling an old-fashioned doorbell. According to Allak it is supposed to ring if any outsider opens the locks of the tanks. No one has yet heard a ring.

Security Relaxed

Allak said that in the Soviet period the security was tighter. In addition to the present fence there was a second fence. The area had concrete bunkers and watchmen. When the tanks of the 144th Division still roared in the neighboring forest, civilians did not even dream of breaking into the nuclear dump.

Allak said that after the Kiisa accident the "big shots were jumping" in the area. Perhaps there now will be money for fixing up the storage area. According to Jaan Saar funds were appropriated previously just for repairing the area's barbed wire fence, but not even this was accomplished. It is planned to use the storage facilities for radioactive substances up to the year 2010, when they will all be full.

Nuclear Waste Storage Site Under Police Guard

LD2401133195 Stockholm Sveriges Radio Network
in Swedish 1130 GMT 24 Jan 95

[FBIS Translated Text] As we reported earlier, large quantities of radioactive material have gone missing in Estonia. Waste, containing radioactive sources of radiation, was found a couple of weeks ago in a ditch by the side of a road,

and last fall a man died from radiation injuries after having stolen metals from Estonia's store for nuclear waste, situated in Saku, south of the capital, Tallinn. The store, meant for low and medium-active waste, lies in a somewhat remote area just outside the capital. Our correspondent Ingrid Gustavsson reports from the nuclear waste store in Estonia:

Gustavsson: This is Estonia's waste plant for radioactive materials, lying in Saku, some 10 km outside Tallinn. This waste store lies in the middle of a forest. It is surrounded by a fence, a barbed wire fence only one meter high. After the theft, it is now being guarded around the clock by police, but in the past it was poorly guarded. The waste is being stored here in a concrete bunker. It has different compartments, and those compartments which are full are sealed with a concrete lid, but those that are not full have only a tin lid. And here now is the radioactive source found in a ditch by the road to Narva; it lies here, radiating.

What you can hear now here is a dosimeter which shows, outside this waste plant, the scale of the radiation.

[Begin recording]

Gustavsson, in English: Jan Saar [not further identified], how high is the radiation right now?

Saar, in English: It is (?30) [words indistinct] (?megasieverts) per hour, approximately. [end recording]

Gustavsson: Thirty and 90 (?sieverts) per hour, 20-30 meters from this strongly radiating piece of metal. That is about 300 times higher radiation than the normal background level. (Hannu Putnik), chief of the measuring laboratory, established with another type of gauge that this is Cesium 137. The metal piece, containing the source of the radiation, is simply placed directly on the ground.

[Begin Putnik recording, in English]

Putnik: It was urgent to move this source onto a controlled area, and we are planning what to do with it right now. [end recording]

Gustavsson: It was urgent to move this source of radiation to a controlled area, Hannu Putnik said. Now they are uncertain what to do with it. It must be stored in a container, but the rescue service does not have access to remote-controlled equipment, nor does it have containers to encapsulate the waste.

The long-term problem is what to do with the actual storage in Saku, which does not fulfil any international norms of any kind. A fresh inventory carried out by Kurt Bergman of the IAEA, shows that the store contains large quantities of cesium, strontium and radium, which in different ways are very dangerous to humans coming into direct contact with these substances.

After the theft last fall, there are policemen at the site, but it is a forest area, without lighting, which is difficult to guard. What will the police do if someone tries to force their way in?

Unidentified voice: [Words indistinct]

Gustavsson: If they are unarmed, we just arrest them; if they use weapons, we too must use weapons, the policeman by the barbed wire fence has just said.

First 50 Tons of Reactor Water Purified at Paldiski
WS2501104595 Tallinn BNS in English
1559 GMT 24 Jan 95

[FBIS Transcribed Text] Tallinn, Jan 24, BNS—A Finnish-led team working at the former Russian nuclear reactor facility at Paldiski, Estonia, had purified 50 tons of low-radioactive water by Tuesday morning, officials told BNS.

Using a full-automatic purification system supplied by Finland's Imatran Voima (IVO), the team purifies about 4-5 cubic meters of water per day. The operation is run by IVO's Estonian subsidiary.

The Finnish Government has given the equivalent of five million Estonian kroons for financing the work.

The content of radioactive cesium 137 in the water is reduced up to 3,000 times in the process, making the water clean enough to correspond to all environmental safety standards, said Henno Putnik, expert at the Estonian Institute of Meteorology and Hydrology.

The water is collected in a 250-ton tank that will be emptied into the sea after additional checks and authorization of the release by the Estonian Environment Ministry.

In the operation that began at Paldiski on Jan. 11, a total of 500 cubic meters of water formerly used in reactor coolers and other systems are to be made environmentally safe in a two-stage purification process.

The work is being carried out under surveillance by Russian nuclear experts, who are scheduled to turn the former reactor facility over to Estonia in September.

The contaminated water is taken from huge storage facilities, which also are estimated to contain some 350 cubic meters of radioactively polluted mud. Experts say the mud is up to 1,000 times more contaminated than the water.

Experts to date have completed examination of 95 percent of the water and mud samples taken from the tanks and are now charting radiation levels.

Finland Begins Work To Clean Up Paldiski Base
LD2601125695 Helsinki Suomen Yleisradio Network
in Finnish 1000 GMT 26 Jan 95

[FBIS Translated Text] The purification of the former Paldiski military base, situated in Estonia, has started with efficiency. The purification plant, developed by Finns, has processed 60,000 liters of radioactive waste water. A quantity of 730,000 liters remains in concrete basins to be purified. The aim is to purify the basins by the end of May. The Paldiski waste originates from two nuclear reactors, used in the training of nuclear submarine personnel in the former Soviet Union. The cost of the purification work, carried out by Imatran Voima, is about 2 million Finnish markkas.

Plans To Dump Radioactive Waste at Paldiski Revealed

WS2601102695 Tallinn BNS in English 1725 GMT 25 Jan 95

[FBIS Transcribed Text] Tallinn, Jan 25, BNS—Estonia revealed plans on Wednesday to transfer its dumping facility for radioactive waste from near the village of Saku, to the southwest of Tallinn, to the former Russian base area of Paldiski.

The radioactive materials dumped at the Saku facility would be taken to the new facility of Paldiski, if the plan of setting up a properly furnished dumping site at Paldiski wins final approval.

The authorities' ways of running the Saku dumping site have been widely criticized recently, particularly after lax security measures made it possible to steal radioactive metals from the dump.

The former Russian nuclear reactor area, which includes two reactor bodies, places for storage of radioactive waste, and a number of auxiliary buildings, is scheduled to be turned over to Estonia by Sept. 30.

The Estonian Economics Ministry is to set up a separate department to run the former reactor facility, the government's special representative Juri Tikk said at a briefing Wednesday. He said the new department would also take over dealing with the Saku radioactive waste deposit, from where the waste matter is to be taken to Paldiski.

The Economics Ministry must submit its proposals as to formation of the Paldiski facility governing unit to the government by Feb. 15.

Energy Minister Arvo Niitenberg, however, called for setting up a special company that would run the Paldiski facility after its takeover from Russia. He said the company would tackle the technical and economic matters, while regular checks as to environmental safety would be carried out by the Estonian Environment Ministry.

Niitenberg said Finland, Sweden and the United States had all promised to help Estonia train workers for the new company. "U.S. President Bill Clinton during his visit to Riga (in July 1994) pledged 2 million dollars in aid to clean the environment at Paldiski. A part of this aid comes in technological advice and know-how," the minister said, adding that a U.S. adviser would start work with his office from March 1.

Russia, who took out nuclear rods from the two reactors at Paldiski last fall, is currently working on a plan for conservation of the reactors. The reactor bodies are to be covered with a half-meter-thick layer of concrete. A team of Finland's Imatran Voima at the same time is purifying polluted water formerly used in reactor coolers at Paldiski.

KAZAKHSTAN

Nuclear Waste Disposal Discussed

LD2901173395 Almaty KARAVAN-BLITS in Russian 23 Jan 95 p 1

[FBIS Translated Text] We live on a nuclear dump. There are 300 places in Kazakhstan where radioactive waste is buried.

This "rubbish," inconspicuous and invisible, and carefully packed in ampoules, is not unsightly or malodorous. But nevertheless it is terrifying. Therefore it is not by chance that the Supreme Assembly is ready to pass a law on the treatment of radioactive waste, and the Kazakh prime minister has signed an instruction that appoints the national joint stock company for nuclear power and the nuclear industry as the state contractor responsible for creating a republican system for utilizing and storing radioactive waste. Our correspondent met Aydar Tulebayev, the director for foreign economic relations of the national joint stock company.

Correspondent: It is very difficult to find anything similar to the job that you have received. What is the most surprising thing about it?

Tulebayev: The lack of an owner. Today there are 300 places in the republic where radioactive waste is buried. What is more these places were top secret, even people in the health service, the sanitary epidemiological stations, and the ecology service did not know about them. After the collapse of the Soviet Union more than 200 of them were left without an owner, unsupervised. Therefore, the acute necessity arose of passing an appropriate law and establishing a team that would work on this seriously.

Correspondent: Until recently the Semipalatinsk test range was headache number one. At last it was closed down, and everybody seemed to have calmed down. Meanwhile, it is known that a shell has remained underground with the mysterious name of object No. 108, which was placed there before the test range was closed. It cannot be exploded, as explosions are banned, and cannot be left underground, as it is dangerous....

Tulebayev: For the time being it is still in the ground. There is an agreement that the Russians will dismantle this object. But its fate has not yet been decided. But the fate of the object Baykal, has been settled. Its construction has finally finished and it will be commissioned. Radioactive waste will be stored here. The Semipalatinsk test range is probably the only place that everybody knows. But now it is known that there were 11 places in Kazakhstan where nuclear explosions were carried out.

Correspondent: What do you mean, 11?

Tulebayev: Two test ranges were for military purposes—Semipalatinsk and Azgir, the rest of them were for peaceful purposes, scientific-research. Explosions were carried out deep underground, but they did not cause pollution. One does not need to make a big secret out of this, we must all think together, both scientists and the public, about how to clean up the earth and restore its strength and beauty.

Correspondent: Do you know how to begin?

Tulebayev: Specific places to collect waste are to be determined in western, central, eastern and southern regions. I can name specific places—the Stepanagorsk area in western Kazakhstan, at the border of south Kazakhstan, Dzhambul and Dzhezkazgan regions and in Mangistau region—i.e. where it is necessary to collect waste. Not just

to pick up and bury the radioactive rubbish, like a potato, but to establish a monitoring system, control it and sort out what can be reprocessed and what can be reused

Correspondent: Does this affect nuclear power stations?

Tulebayev: We are so frightened by Chernobyl, that we are generally afraid to speak about nuclear power stations, and in Kazakhstan they produce only 0.9 percent of energy. At the same time they have a future. Thermal power stations consume 60-80 tonnes of coal a day while the energy produced is small, but expenditure and ecological damage is huge. But the coal reserves on our planet, as has been calculated by scientists, will last 200 years, gas for 150 years, oil for 100 years. What do we do after that? There is no alternative to nuclear power stations. It is another matter that when creating them, one has also to ensure complete guarantees of ecological safety. Today there are about 400 nuclear reactors in the world that are used for peaceful purposes. In Kazakhstan one swift neutron reactor is used to desalinate water in the Caspian, which is supplied to Aktau. A second is used for scientific purposes near Almaaty, in the village of Alatau. Another three of them are in Kurchatov, on the Semipalatinsk test range.

Correspondent: Each of them, whether we like it or not, is a source of radioactive waste. Plus the test ranges, about which we have talked, plus the waste from extracting and processing uranium ore, and other sources of pollution. How much of this radioactive waste do we have, can one imagine it somehow?

Tulebayev: Let us try it in figures. We say that radioactive waste here covers an area of 5,000 hectares. The irradiation capacity of these wastes is 13 million curies, of which 90 percent is at the Semipalatinsk test range...The figure seems to be huge. But when we compared it with official Russian figures, it turned out that there it is more than 1 billion curies.

Correspondent: All this is difficult to imagine. The facts, which leaked out to the press are simpler: Either schoolchildren find an ampoule containing something terrible, or uranium-containing raw materials are transported with violations of the rules...So, a good law may be passed. But everything is smooth on paper, and in life....

Tulebayev: Frankly speaking I am concerned about this most of all. Yet almost all undertakings need money. Those times have passed, when one could say to the people: You are so good, you are patriots—let us build this site for the nation's well being. Now everything has to be paid for. For example, in Ukraine 12 percent of the budget goes on eliminating the consequences of the accident at the Chernobyl nuclear power station. Here, last year nor this year not a single tenge was allocated for such purposes. On the other hand foreigners eagerly offer their help, putting forward various conditions. For example, the U.S. firm (?Dioney) is allocating \$4.5 million in 1995 to investigate and assess the activities of the Semipalatinsk test range. There are also other proposals from foreigners. We have to use their services as well. For we have to start with something....

Kzyl Orda Region's Ecological Health Problems Worsen

LD1201161895 Almaty Kazakhstan Television Network in Kazakh 1500 GMT 11 Jan 95

[FBIS Translated Text] Social issues have been the focus of our government's attention for a long time. In this connection the president issued some resolutions and the Supreme Council adopted several documents. There are enough laws, as well, but it seems that the Kzyl Orda regional administration is not working enough to ensure that these problems are tackled. Here is a report from our correspondent on this:

Unidentified correspondent: The poisonous dust and various harmful remnants which fall to earth during the launch of spacecraft, the salt which has covered the soil, and in addition to that the worsening of people's living conditions, caused a rapid spread in such diseases as infectious typhus, epizootic illnesses, hepatitis, and infectious intestinal diseases in the Kzyl Orda region over the last few years. And also the number of people suffering from pulmonary diseases is increasing from year to year. About 700 people are registered every year as suffering from these diseases and 120-130 of them die of pulmonary diseases. Over recent years, out of 1,000 people, the number suffering from heart disease and respiratory problems has grown by ten times, from gall bladder and nephritis by six times, and from tumors 1.5 times. Over 10,000 people undergoing treatment at hospitals suffer from complicated types of nervous diseases. Over the last two years about 400 babies were born either sick or crippled.

It is true that there is a regional program on eliminating the regional ecological problems, and meetings by state officials on these matters are being held as well as scientific conferences. But it is also true that we do not see any results from this.

KYRGYZSTAN

Chinese Envoy Defends PRC's Nuclear Testing

LD2801101695 Bishkek AALAM in Kyrgyz No. 12 Jan 95 p3

[FBIS Translated Excerpt] The Central Asian republics, including Kyrgyzstan, are considered a strategically very important region, since they are bordered on the west by Arabic and Islamic countries, on the south by China, on the north and east by Russia. This is why, under the pretext of occupying the market of the Central Asian countries, the major powers are surreptitiously carrying out activities to turn this strategically important region into a military base. Our neighbor China is considered one of the great powers, which looks with hostility and envy at Kyrgyzstan. Our correspondent specially addressed a few questions to (He Wei), first secretary of that great nuclear power's ambassador in Kyrgyzstan.

(He Wei): [passage omitted: Chinese Government interested only in peaceful economic and trade relations]

Correspondent: Thank you for your time. Our concerns are that the great powers—, such as the United States, China, Japan, Turkey—may at sometime or other conduct imperialist relations against Kyrgyzstan.

(He Wei): China strictly observes the principles of nonviolation of borders and noninterference in the internal affairs of other countries. We will never interfere in the internal affairs of Kyrgyzstan. But other countries are violating these principles. For example, when several newspapers were closed in Kyrgyzstan the Americans delivered a lecture to the opposition on the pretext of training them how to fight for democracy. This is considered interference in internal affairs. But China will not do this. We always maintain neutrality. [passage omitted: quality of Chinese goods]

Correspondent: Comrade (He Wei), there are frequent articles saying that the Lop Nor [Chinese nuclear testing ground] explosions are harming the health of the people of Kyrgyzstan. When will you halt the nuclear tests?

(He Wei): As a peace-loving country China is considering reducing and eliminating its nuclear weapons. At the same time, it is true that China is being forced to take measures because the great nuclear powers have still not stopped producing more developed types of arms.

The Lop Nor explosions do no damage to Kyrgyzstan. Inspections of radiation levels by experts show this. As the Kyrgyz say, if a piece of hay flies from Alai they will say that a mountain has flown; it is considered a groundless concern and an exaggeration. In Lop Nor the tests are carried out underground at a depth of dozens of meters. Our government has taken every measure to prevent damage to people who live near the test site.

LITHUANIA

Country Must not Become Nuclear Waste Storage Place

*LD0102183295 Vilnius Radio Vilnius Network
in Lithuanian 1200 GMT 1 Feb 95*

[FBIS Translated Text] The Ministry of Environment Protection has condemned attempts by various departments to justify bringing cargoes of radioactive substances onto Lithuanian territory, the Baltic News Service reports.

Lithuania must not become a ground to bury radioactive materials and foreign waste, says Bronius Bradauskas, the minister of environment protection, in a statement published today. The minister draws attention to the fact that attempts have become more frequent recently to illegally bring radioactive materials into Lithuania. Various firms are more often applying for permits to bring waste.

The statement mentions the unjustified, according to the minister, permission to allow a radioactive truck to enter the territory at the Medininkai post on the border with Belarus at the end of January, when a cargo of Wolfram,

exceeding by hundreds of times the permitted norm of radiation, was taken to the depository of the Ignalina nuclear power station.

According to the minister, border and customs services must take all possible measures to ensure that radioactive substances do not enter the territory of Lithuania without a corresponding permit, and radioactive contraband and waste are returned and taken beyond the borders of Lithuania.

UKRAINE

Admiral Accuses Black Sea Fleet of Damaging Environment

*AU3001124895 Kiev HOLOS UKRAYINY in Ukrainian
27 Jan 95 p 1*

[Unattributed report: "The Ecological Damage Brought About by the Black Sea Fleet Is Twice Its Worth"]

[FBIS Translated Text] The ecological damage done to Ukraine by the Black Sea Fleet has been estimated at \$19.4 billion and is almost twice the worth of the Black Sea Fleet itself, stated on Wednesday [25 January] in an interview for the INTERFAX-UKRAYINA Agency deputy commander of Ukraine's Navy Rear Admiral Mykola Kostrov. According to him, results of an analysis of ecological consequences of Black Sea Fleet activity conducted by the interdepartmental commission of Ukraine's Ministry of Environmental Protection point to the catastrophic level of damage inflicted on the environment. About 9,000 cubic meters of industrial water and sewage is discharged annually into Sevastopol Bay, stressed the rear admiral. In the area of the petrol and oil yard, about 120,000 metric tons of petroleum products have accumulated in the soil of Sevastopol Bay.

Kuchma May Sign Decision on Closing Chernobyl
*LD0102185295 Moscow INTERFAX in English
1618 GMT 1 Feb 95*

[From the "Presidential Bulletin" feature: compiled by Nikolay Zhrebtssov, Andrey Petrovskiy, edited by Vladimir Shishlin]

[FBIS Transcribed Text] Ukrainian President Leonid Kuchma said he was ready to sign a decision on closing the Chernobyl Nuclear Power Station.

Kuchma told German Finance Minister Theo Weigel who arrived in Kiev on Tuesday in order to open the living district for Ukrainian servicemen that the issue of closing the Chernobyl Nuclear Power Station went hand in hand with many unsettled problems and so could not be resolved in the near future.

Earlier, the Ukrainian government said that closing the Chernobyl Nuclear Power Station would require investments of \$5-8 billion.

The Ukrainian parliament will discuss the draft law on utilizing nuclear power and radiation safety in the second reading next week.

Chairman of the Ukrainian Parliamentary Permanent Commission on Nuclear Policy Mikhail Pavlovskiy told a press conference in Kiev that in accordance with the draft law, the organization utilizing the nuclear facility would bear the entire responsibility for possible accident. Claims to deliverers of nuclear fuel and equipment could not be put forward.

Pavlovskiy said he believed that the law would allow Ukraine to join the Vienna Convention. He said the Vienna Convention limited the term for bringing actions in the court for receiving compensation for damage as a result of a nuclear accident by 10 years. The analogous Russian law limited the term by three years.

In accordance with the Ukrainian draft law, the Chief Inspector of Ukrainian Nuclear Facilities will have emergency powers. If he makes a decision on switching off a nuclear power station the decision could be appealed only in the court. Even the Ukrainian premier could not cancel such a decision, Pavlovskiy said.

Theo Weigel told the Ukrainian president that he would make known the position of Ukraine on the reforms and closing the Chernobyl Nuclear Power Station at the meeting of the G-7 finance ministers in Toronto.

During his meeting with the German finance minister, Kuchma said he was in favor of receiving Western aid for preparing for the monetary reform in Ukraine. Kuchma said the reform would be a confiscation and its beginning would be announced beforehand.

Commenting on the situation in Chechnya, Kuchma said he did not back the methods used by the Russian leaders.

Joint Venture To Start Exploration of Crimean Shelf June 1995

WS2501104795 Lvov INFOBANK in English
0858 GMT 25 Jan 95

[From the "News Service" feature]

[FBIS Transcribed Text] Crimean Vice Prime Minister Arkadiy Demydenko met with the leadership of the Ukrainian-British joint venture "KRYMSKA NAFTOVA COMPANIYA" ("Crimean Oil Company"). This company was established in order to explore and utilize oil and gas fields on the continental shelf of the Black Sea. This joint venture prepared all the necessary papers regarding the technical aspects of the project, which will enable the beginning of experimental drilling of the first hole as early as June 1995. During this meeting, the possibility of the construction of a joint complex for the extensive processing of gas and gas condensate near the town of Chornomorske was discussed. The complex will be constructed using Western technology and according to international standards of ecological safety. The joint venture will fully supply Crimea with liquid propane-butane and partially with petrol.

Report Deplores Gas Pipelines State, Slams Russian Attitude

AU2601123195 Ivano-Frankivsk HALYCHYNA
in Ukrainian 21 Jan 95 p 3

[Report by Oksana Rovenchak: "We Sit on a 'Power Keg,' and Russia Profits From This"]

[FBIS Translated Text] Dolyna, as almost no other town in Carpathia, sits on top of a "powder keg." This town at the foothills of the Carpathians is cut through in all directions with gas and oil pipelines. On its outskirts, one can see towering turbines of the gas compressor station, servicing the trans-European gas pipeline "Braterstvo" [Brotherhood] and a gas-processing plant. Particularly badly damaged by various types of lines is the part of the town located on a hill. The dug up Carpathians are appealing for protection and help.

It is a paradox of Soviet policy that Ukraine does not profit from laying other countries' pipelines through its fertile land. Moscow never asked Kiev's consent when it planned where those lines would run. It was only at a Supreme Council session of a democratic convocation [after the proclamation of independence] that the question was raised on a certain percentage of energy sources for Ukraine in return for the transportation services. According to estimates by Academician Ihor Yukhnovskyy, Ukraine's people's deputy, our state may fully satisfy its own needs in gas. Of course, on the condition that it will charge corresponding payment for transporting the energy sources across its territory. As is known, Russian and Turkmenian gas pipelines run across the territory of Ukraine. As estimated by the strategist in overcoming the energy crisis, in accordance with international norms, this might provide us with almost 20 billion cubic meters of gas a year. Our own extraction of the blue fuel averages over 20 billion cubic meters, but, as a result of intensifying gas extraction in already explored fields, Ukraine may bring up the annual yield of Ukrainian gas to 30 billion cubic meters.

However, unfortunately, Russia avoids paying for the fuel transportation. It resorts to different excuses and economic blackmail, threatening to totally stop gas deliveries. In official Kiev, nobody raises the question of material compensation for those regions through which main gas pipelines run. This is not a matter of "claiming payment for the pipelines mileage." Beside the fact that picturesque places in the Carpathians have been destroyed and people who had lived in the vicinity of the pipelines were evacuated from there, there is also a no less significant safety problem. As some specialists assert, the talk of the "powder keg" are in no way an exaggeration. The pipes do not last forever. They must be replaced periodically. However, who will do this on time, now that Ukraine is experiencing economic difficulties and in view of the interstate chaos regarding investments in the renewal of the pipelines, which are both physically and technologically outdated?

Russia invests capital in the construction of those new pipelines that are advantageous for it. It does not care about the reliable operation of old subsurface channels for transporting gas. As the Russian mass media boast, in the first quarter of the current year, Boris Yeltsin will be present at the commissioning of a distributive gas pipeline between Torzhok (Belarus) and Dolyna. It only remains to build 57 kilometers of the 540-kilometer line. As our correspondent was told at the "Lvivtransgaz" [Lvov Gas Transportation] administration, which initiated the order for building the new line, tens of kilometers of the gas pipeline in eastern Ukraine have not yet been completed. The Dolyna compressor station is ready to commission the distributive gas pipeline. Russia will transport natural gas to Western Europe.

It is known that Ukraine has not yet paid Russia in full for the energy sources, but has lately been paying regularly for the gas supplies. The debt for 1993 remains. Our state owes the "Gazprom" [Russian Gas Industry] \$1.5 billion.

The negotiations on determining the mechanism for repaying the debt for energy sources have not produced results. At the summit in Budapest, Russian Foreign Minister Andrey Kozyrev put off discussion of the problem for several months.

It is now up to Ukrainian representatives at the next round of negotiations to stand up for our position on proper settlements for transporting gas. If they succeed, we will not only get more gas, but also guarantees for the safe operation of the pipelines. Besides, Russia will realize that Ukraine is an equal partner in transporting gas to Western Europe.

New Radioactive Waste Disposal Department Formed
LD2701111895 Kiev UNIAN in Ukrainian
1000 GMT 27 Jan 95

[FBIS Translated Text] Kiev [no dateline as received]—Ukraine's State Committee for the Use of Nuclear Power has set up a new department for the disposal of radioactive waste, Valeriy Starodumov, deputy head of the committee's science and technical directorate told UNIAN. The new department is formed in accordance with the committee's program for radioactive waste disposal. Work is in progress at Chernobyl nuclear power plant to design recycling facilities for nuclear waste, to be released during the phase-out of Chernobyl AES, operations at the cover unit (containing the crippled fourth reactor) and the functioning of other nuclear plants.

According to Starodumov, the new department is not envisaged in the state guidelines on nuclear safety regulation and nuclear sector administration, which refer nuclear

waste disposal to the Ministry for Protection of the Population from the Aftermath of the Chernobyl Accident. But the ministry, he said, is not paying enough attention to the issue, which has led to certain problems with nuclear waste at nuclear power plants.

The worst situation today is reported at Khmelnitskiy AES, where liquid radioactive waste repositories are almost full. According to the Ministry of Environment and Nuclear Safety, the Khmelnitskiy AES repositories will last for three more years, or for 18 months if its second power generating set is commissioned.

World Bank To Assist Reconstruction of Hydroelectric Plants

WS2701111895 Lvov INFOBANK in English
0835 GMT 27 Jan 95

[From the "News Service" feature]

[FBIS Transcribed Text] According to the draft national program for energy supplies in the Ukrainian economy until 2010, reconstruction of hydroelectric power plants on the Dnieper River is expected to begin soon. Modernization in the energy sector will include improvement of existing energy-producing units for 200, 300 and 800 megawatts, implementation of ecologically safe technologies for the burning of low-quality coal, and introduction of efficient steam-gas energy-producing units at the Prydniprovska, Slovianska, and Chyhyrynska power plants. This was decided at the session of the Cabinet of Ministers held on January 26. According to Konstantyn Skoryk of the World Bank Mission in Ukraine, the World Bank is drawing up two projects for the renovation of Ukrainian hydroelectric and thermal power plants. At the end of February, talks between representatives of Ukraine and of the World Bank will take place in Washington. They will discuss a credit of over \$100 million for the reconstruction of hydroelectric power plants on the Dnieper and the financing of a national dispatching center of the Ukrainian Energy Ministry. The term of this credit will be seventeen years and the reconstruction of power plants on the Dnieper River should be finished by the year 2000.

According to information provided by the Energy Ministry, as of January 23, the national debt to this ministry is over forty-five trillion karbovantsi. At the same time, the ministry's debts for fuel and loans are estimated to be nearly fifty-six trillion karbovantsi. The Energy Ministry experts believe that the situation can be improved only if the payment for energy resources will correspond to the actual value of those resources. At present, the price of one kilowatt hour of electricity in rural areas is forty times lower than its actual cost and twenty-six times lower in urban areas.

REGIONAL AFFAIRS

EU Commissioner's Environment Policy Viewed

BR2401104695 Copenhagen INFORMATION
in Danish 21-22 Jan 95 p 2

[Article by Jens Bosstrup: "Ritt Throws Bombs in European Environment"]

[FBIS Translated Text] Brussels—The fight against governments and commissioners begins on Monday [23 January]. Two weeks ago she fell out with the European Parliament's environmental committee. Last week she was the central figure in the dramatic battle between the new Commission and the entire European Parliament. While the battle over Ritt Bjerregaard was still raging out in the rest of Europe, she this week threw herself undaunted into a bitter struggle [over drawing her Danish ministerial pension while receiving her EU commissioner's salary] with the Danish prime minister, and it looks so far as though he might well be humiliated—unless Ritt herself takes pity on him.

And on Monday Ritt Bjerregaard is going to take up the fight against the EU's national governments and her new Commission colleagues. Drinking water, CO₂ emissions tax, toxic substances, gene technology, washing machines, and creosote are the main bombs in the Bjerregaard arsenal.

The EU regulations on drinking water quality are the first matter Ritt Bjerregaard wants to tackle, she told INFORMATION. Drinking water will thus be the first test of whether she can keep her promise to the European Parliament's environmental committee that she would not accept any lowering of environmental standards, including those for drinking water in Europe.

Certain Conflict

This promise will undoubtedly bring her into conflict with other commissioners, among them the powerful commissioner for industry, Martin Bangemann.

"There is a special problem with the directive on drinking water, because the former Commission has already made a proposal," Ritt Bjerregaard said. But there is in principle nothing to prevent the Commission from withdrawing its proposal and making a new one.

By and large the Commission's proposals for new drinking water standards are a clear improvement. The strict limits on crop spraying substances, which have been a major concern in Denmark, are retained. Requirements for things like lead content have also been tightened, which mean enormous investments in countries like Britain and the Netherlands, if they are to be met.

But there are a few snags. In the first place, it is theoretically possible to weaken the directive's demands by circumventing the Council of Ministers and the European Parliament. Before it was accepted, there was disagreement in the old Commission on precisely this point. It

ended with a compromise which gave technical experts the possibility of altering permitted levels to a certain extent.

Second, it will be easier for individual countries to obtain exemptions from the strict requirements. This could be important for Spain, for example, which is faced with the choice of turning off the water and making very expensive investments—or relaxing the standards. The directive could thus mean a reduction in standards in precisely those countries where the need for them is greatest.

Third, the current permitted levels for overall crop spray residues in drinking water will be suspended, so that in the future water will be tested only for each residue individually. Up to now these permitted levels have not been of any particular importance. But environmental experts fear that when they are gone, crop spray producers will get round the quality requirements by changing the chemical composition at appropriate intervals.

This could mean that the quality of drinking water is reduced. At least in those countries where the authorities are not interested in preventing this.

"Here we get into the discretionary principle," Ritt Bjerregaard said. She did not, however, want to make a firm statement on how she will demand that the directive be amended before she has studied the details.

The CO₂ emissions tax is the next big minefield Ritt Bjerregaard has to get through. That she places great importance on the matter was confirmed yesterday by her appointment of the Taxation Ministry's Brussels representative, Marianne Thyrring, as a member of her staff.

From the Danish standpoint, the weak point of the French model is that it tries to solve the problem of the greenhouse effect by transferring energy consumption to nuclear and water power, which do not produce CO₂. But as Environment Minister Svend Auken has put it, it would be a serious problem for Denmark to support a policy which favors nuclear power.

Another concrete promise from Ritt Bjerregaard to the European Parliament's environmental committee was to prevent a weakening of the regulations on the release of genetically-engineered organisms. Here the environment commissioner comes into conflict with both the EU Commission and a large majority of member nations, which last autumn asked the Commission to make proposals for a liberalization.

With the so-called biocide directive, she at least has the old Commission on her side. The Danish Environment Ministry considers the proposal far-reaching and very high-profile for environmental policy.

But here too Ritt Bjerregaard will run foul of a majority of EU countries which want to weaken the Commission's proposals to a point which would affect Denmark in particular. Denmark has introduced the possibility of banning toxic products if there are effective alternatives

which are more environmentally friendly. The EU Commission wants to adopt this regulation as common EU law, but a large majority of countries are against it.

Dilemma

On this issue—if not before—she will find herself in the dilemma that by standing firm on there being no reductions in standards, she will prevent the acceptance of regulations which represent major progress at the European level.

If Ritt Bjerregaard will not agree to a change in the Commission's proposal, all 15 member countries will have to agree to vote her down. If she agrees to a change, it can be approved by a qualified majority—which means that two large and two small countries, or three large ones can slow it down.

The European Parliament's environmental committee will thus have ample opportunity to judge the environment commissioner on the few but far-reaching promises she has made. The new environment commissioner has no history of swallowing defeats. And certainly not in silence.

This will soon be apparent not only to the environmental committee, but also to the other commissioners and EU national governments.

DENMARK

Foreign Ministry Wants Account of Crashed B-52 in Greenland

LD3001223495 Helsinki Suomen Yleisradio Network in Finnish 2200 GMT 30 Jan 95

[FBIS Translated Text] The Danish Foreign Ministry demands a detailed account from the United States of the crash nearly 30 years ago of a U.S. aircraft in Greenland. The United States Air Force B-52 bomber crashed in northern Greenland in 1968. The aircraft was carrying four hydrogen bombs with plutonium detonators. Denmark believes that the United States has provided inaccurate information and suspects that the hydrogen bombs lost when the aircraft crashed are still on the sea bed. Denmark is also to begin detailed health checks on the Danish construction workers who participated in searches. Many of them have developed cancer.

Nyrup Rasmussen Critical of United States Over Thule Affair

BR0102152195 Copenhagen POLITIKEN in Danish 1 Feb 95 p 1

[Report by Lotte Lund: "Poul Nyrup Rasmussen Criticizes United States"]

[FBIS Translated Text] Prime Minister Poul Nyrup Rasmussen (Social Democratic Party) yesterday criticized the United States for keeping secret information in the Thule affair.

He also lent his support to Foreign Minister Niels Helveg Petersen (Radical Liberal Party) in his demand to the Americans that they hand over all the relevant material relating to the Thule affair.

"The situation in 1968 has still not been fully illuminated. We still do not know what information we could have been given and what information we were not given. This is an unsatisfactory situation," Nyrup Rasmussen said at his weekly news conference at the Prime Minister's Office.

On Friday [27 January] the Foreign Ministry lifted the censorship of the memorandum which shows that the United States withheld information from the Danish authorities relating to the bomber which crashed near Thule in 1968 with four hydrogen bombs on board.

The prime minister also said that the Health Ministry and the Institute for Radiation Protection are currently working to complete a request to the United States which is designed to bring the last classified information to light.

U.S. Ambassador Edward Elliott Elson told the TV-Avisen program yesterday that the United States wants to be of assistance in clearing up the Thule affair, but that there will be information which cannot be handed over for reasons of U.S. national security.

Soil Treatment Research Center Established

BR0302095295 Oslo NEW SCANDANAVIAN TECHNOLOGY in English Vol 6, No. 4 1994 p 27

[Unattributed article: "New Danish Research Centre to Develop Technology for Cleaner Soil"]

[FBIS Transcribed Text] Soil which is polluted with heavy metals or chemicals is an environmental problem the world over. Five Danish research institutes have established a research and developmental centre to develop methods and technology for cleaning of contaminated soil.

The newly established centre is called The Danish R&D Center for Soil Treatment. Head of the centre is Bjorn Jensen of VKI-Water Quality Institute - an independent Danish non-profit organization specializing in the environment and water quality.

"There is a great need for developing soil-cleaning technology. There are no economically viable techniques for cleaning soil polluted with, for example, tar (PAH) or heavy metals. It is exactly this pollution that the authorities recommended be dealt with first. The present solution is to excavate the soil and move it somewhere else," says Bjorn Jensen. "We are therefore aiming at developing cost-effective techniques, similar to those we have today, for cleaning soil polluted with oil or gasoline.

"In recent years, Danish research institutions have built up a significant bank of knowledge on biological degradation of chemicals in the soil. Therefore, The Danish R&D Center for Soil Treatment are going to channel this knowledge, achieved through research and laboratory testing, into an actual technology that can be carried out in co-operation partly with other research institutions, partly with soil-cleaning companies, advisers, entrepreneurs and the environmental industry.

The Danish R&D Center for Soil Treatment was established by the Danish Environmental Group, a co-operative

network of five leading research institutions. Apart from VKI, the co-operative includes Danish Environment Research, Danish Geological Research, The Danish Technological Institute and Riso Research Centre. Together, these five institutions have a very comprehensive knowledge in the fields of geochemistry and process engineering. The idea behind the centre is therefore to take advantage of the synergy which is created by linking the institutions' competence in their respective fields.

The background for the Danish research centre is the need to clean a significant amount of the approximately 10,000 polluted sites in Denmark. However, it is also hoped that the same technology being developed by the Danes can be used to clean soil in eastern and southern Europe, and in the Far East.

FINLAND

Finland President Opposes Labor-Trade Link
BK2501043395 Bangkok *THE NATION* in English
25 Jan 95 p A2

[FBIS Transcribed Text] Finland's President, Martti Ahtisaari, yesterday reaffirmed his country's policy of opposing any attempt to link labour practices and environmental standards to trade policy.

"We certainly support efforts to improve labour standards and standards of environmental protection, but we remain firmly opposed to attempts to turn these efforts into protectionism of one sort or another," Ahtisaari said in a prepared speech yesterday at a seminar titled "Thai-Finnish Economic Partnership and High Technology from Finland".

Ahtisaari did not say Finland would oppose any initiative by the European Union to incorporate labour and environmental issues in the trade sphere, but his statement on these issues came as Asian countries, especially ASEAN, have been drumming up a campaign against such linkage in the newly-formed World Trade Organization and in their bilateral talks with the EU.

The Finnish president attended the seminar, which concluded yesterday, as part of his two-day visit to Thailand, the first by a Finnish president. His next destination is Malaysia.

At present, there is no official stance among EU members on linking EU trade policy with environmental standards and labour practices. An official at the Bangkok-based European Union Commission said that such a policy remains at the national level. An official source said without elaborating that it was expected that the EU would eventually take a more critical stance on the issue.

According to the official, Finland, which became the latest member of the EU this month, has the luxury of not linking trade with labour and environmental standards because the EU official stance on the matter has not been completed. However, he said that Finland is expected to adjust its stance to be more in line with EU trade policy.

Traditionally, the EU has a more critical stance than the Nordic countries regarding this issue. However, since a ministerial meeting between the European Union and ASEAN last September, the EU has softened its stance and begun emphasizing ways to improve trade with ASEAN.

Finland's stance, as well as that of the other Nordic countries of Norway, Sweden, Denmark and Iceland, was understandable considering the high trade volume between the group and Asian countries, in particular Thailand, the same official said. All Nordic countries with the exception of Norway are EU members.

According to President Ahtisaari, Thailand has become one of Finland's most important trading partners in Asia. He pointed out that in 1993, Thailand was the second largest market for Finnish exports in Asia, immediately after Japan. Although Finnish exports to Thailand fell by half in 1994, the president said he was confident that bilateral trade would expand in the future.

He also assured that the predicted high volume of growing trade among EU members would not come at the expense of non-EU members such as Thailand.

GERMANY

Minister 'Skeptical' About Berlin Climate Summit Targets

AU2401174195 Frankfurt/Main *FRANKFURTER ALLGEMEINE* in German 24 Jan 95 p 5

[Lt.-attributed report: "Skeptical Glance to Berlin"]

[FBIS Translated Text] Berlin, 23 January—Federal Environment Minister Angela Merkel is skeptical whether the Berlin world climate summit at the end of March will lay down international commitments toward reducing greenhouse gasses. At the UN climate conference in Rio de Janeiro two years ago, a convention was worked out for the protection of the world's climate, which has meanwhile been ratified by approximately 120 countries. This convention commits the member countries to reduce their emissions of greenhouse gasses to 1990 levels by the year 2000. The treaty states are to meet for the first follow-up conference in Berlin.

Mrs. Merkel said in Berlin on 23 January that the Federal Government was seeking to supplement the climate protection convention with a protocol that commits the countries to keep the emission of greenhouse gasses stable beyond the year 2000 or reduce it. Of priority are regulations on the reduction of the emission of carbon dioxide. A protocol to this extent is not expected to be adopted by the Berlin conference because the majority of treaty partners has indicated opposition.

The Federal Government's objective, therefore, is that the Berlin climate conference give the formal order to initiate negotiations between the countries to the treaty on such a reduction protocol. The order should contain conditions for the contents of the protocol and limit the duration of the negotiations. However, the Federal Government would

like the industrial nations to be ready to take a further step and, at least, commit themselves to keep their emissions of greenhouse gasses stable after the year 2000—that is, to keep it at the 1990 level. Yet, this objective was also meeting with opposition from industrialized nations outside the EU, Merkel stated.

The FRG still has to make "enormous efforts" to achieve the national target of reducing the emission of carbon dioxides by 25-30 percent by the year 2005. Although German carbon dioxide emissions decreased by about 15 percent between 1987 and 1993, this effect was mainly due to the shutdown of factories and the modernization of energy production facilities in the new laender. Emission per capita has meanwhile become the same in east and west Germany. To reduce the emission of pollutants further, the Federal Government wants to promote vehicles that consume less fuel, the insulation of existing housing stock, and renewable energy.

Environmental Damage by Russian, U.S. Troops in East Viewed

BR2601115695 Frankfurt SOLDAT UND TECHNIK in German Jan 95 p 58

[Unattributed report: "Military Legacy of Withdrawn Russian Troops"]

[FBIS Translated Text] According to the Federal Environment Office, the damage done to the environment by the now withdrawn Russian troops in East Germany will become a major cost issue. Billions [of Deutsche marks] will have to be earmarked to eliminate it. Following the first assessments of the Berlin environment authorities, 27,000 locations suspected of being ecologically damaged have been found in the 925 vacated locations that have been inspected so far. Emergency measures must be taken for more than 300 places to avoid major risks for man and nature. However, the military did not inflict damage in East Germany only. U.S. troops also damaged the environment in the places that they used and that they have now left.

Minister Merkel Views Climate, Energy Issues

AU2701085595 Munich SUEDDEUTSCHE ZEITUNG in German 26 Jan 95 p 9

[Interview with German Environment Minister Angela Merkel by Thomas Froehlich and Wolfgang Roth; place and date not given: "An End to Coal Assistance in 10 Years"]

[FBIS Translated Text]

SUEDDEUTSCHE ZEITUNG: Although Germany is the host country, the government has decided not to present a draft for reducing CO₂ emissions at the Berlin conference on protecting the climate. Is Germany's international role as a pioneer still credible?

Merkel: The FRG is at least one of the most active Annex-I countries—that is, among the industrialized states. This is reflected in the national obligations that we

have undertaken, our efforts within the European Union, and the preparations that we have been making for the conference in terms of the international angle. One of the reasons for not having a protocol of our own is the fact that we do not want to behave as if "we are top of the class here and we will show you what has to be done" but to act together with other states to arrive at certain agreements.

SUEDDEUTSCHE ZEITUNG: What objections can there be to going along with the reasonable and extensive draft produced by the AOSIS, the Association of Small Island States?

Merkel: Saying that we would now sign the AOSIS protocol would not help in any way. The draft, as well as our extensive proposals, have met with resistance from other states. That is why we are trying to find a common line. A step along that path was the resolution passed in Brussels in December—when Germany still held the presidency—on the EU [European Union] program for reducing CO₂ emissions and it also serves as a mandate with which the European Union can attend the conference, having said for the first time that after the year 2000, CO₂ and other trace gas emissions—and that is the critical point—should remain the same and or be reduced.

SUEDDEUTSCHE ZEITUNG: You are reluctant to agree to a gradual increase in mineral oil taxation. It is true that you have been calling for a CO₂ and energy tax, but the coalition agreement states that such taxes can only be introduced on an EU-wide basis.

Merkel: I do not see things that way. First, concerning the mineral oil tax, the FRG has a relatively high level of mineral oil taxation and I consider the harmonization of consumption taxes in Europe to be necessary before one can begin to talk about speeding things up. We, the European Union environment ministers, have said that taxation is one means of reducing CO₂ consumption. However, that is not what I am urging for the next six months. The second point is a CO₂ and energy tax. You say that it will not come if it is not introduced throughout Europe. I cannot agree with that. I think that other countries will gradually proceed along that path and that a country that is as large as the FRG cannot rule out such measures. We can have another talk about things in three or four years.

SUEDDEUTSCHE ZEITUNG: Great Britain has, nevertheless, decided to gradually raise the mineral oil tax.

Merkel: That is right. Great Britain has basically agreed on an increase, but it has to be approved every year, and it has been approved one year and not approved the next year. No one wants to dispute the fact that the overall tax burden in Germany is high. As environment minister, I would say that taxes are rather too low in the ecological field and rather too high in other fields. There has to be a medium-term reorganization.

SUEDDEUTSCHE ZEITUNG: The technology for renewable forms of energy is available, but it does not

stand a chance in the marketplace as long as oil prices are so low. That can only be offset by subsidies. Where are they to come from?

Merkel: We can also say that we will create incentives and they can also be tax incentives. Whether tax advantages really do result in lower revenues if they also have an impact on the economic climate is something that has not been established conclusively. They can have very favorable economic effects, and that is why I will try to achieve progress in this area.

SUEDDEUTSCHE ZEITUNG: So, what exactly do you expect in concrete terms from the Berlin conference?

Merkel: The preparatory meeting in February will give a clearer indication of the direction in which the results of the negotiations will tend. I expect two things: the main points of a protocol and progress on "the joint implementation of measures for reducing CO₂ emissions" with the developing countries. The issue now is to conduct intensive talks with the industrialized states on the first goal. We have made good progress in the European Union. If the United States could be won over, that would have an impact on Japan, that is how these things are linked. In terms of a timeframe, things have to be clearly settled before the year 2000.

SUEDDEUTSCHE ZEITUNG: With regard to stabilization?

Merkel: Yes, with regard to stabilization.

SUEDDEUTSCHE ZEITUNG: There is already a resolution to that effect.

Merkel: No, no. All that has been agreed is that emissions should be reduced to their 1990 levels by the year 2000. However, nothing has been stated about what should happen after the year 2000.

SUEDDEUTSCHE ZEITUNG: That means that they could rise once again.

Merkel: Yes, and that is what we are concerned about.

SUEDDEUTSCHE ZEITUNG: Let us move on to the topical issue of the energy consensus. You have come out in favor of a combination of budget financing and an energy tax to compensate for the coal pfennig. So, where should savings be made?

Merkel: I do not have a list, which places me in an awkward position. I think that savings can be made, and the budget commission is doing that, having set a target of 5 billion German marks. However, every new goal for savings makes things more difficult of course. I fear that lower electricity prices for consumers would send out a wrong signal. I do not want to increase the price of electricity. An impression that has to some extent been created is that I want to raise the price of electricity for the ordinary man in the street. There would be a comprehensive package that would also involve other sources of energy. Of course, I think that a CO₂ and energy tax would

be more appropriate than if one were to impose a special tax on electricity, but not on coal, oil, and gas for heating purposes.

SUEDDEUTSCHE ZEITUNG: Why is this opportunity not being used to introduce a tax that also has ecological effects right away?

Merkel: As environment minister, I have sound arguments in favor of that. However, efforts are being made in various directions, and there are the statements that minister presidents have made: "No new taxes whatsoever." Others find the ceiling for bituminous coal too high for the laender that do not produce coal. All this has to be harmonized at some stage with the wishes of the coal mining laender and the promises that the government has made. That is why I cannot imagine that we will have a tax covering all sources of energy this year.

SUEDDEUTSCHE ZEITUNG: It is essentially clear that a reduction in coal's share in energy would constitute a substantial contribution to the protection of the climate. Has the CDU [Christian Democratic Union] also been saying that at election campaign events in North Rhine-Westphalia?

Merkel: I have. I am not the North Rhine-Westphalia CDU, so I do not have much trouble, especially as the subsidies for lignite are not that high. I would say that we—unfortunately, I would add—are simply bound by promises that we already scaled down once in 1992, and to do so once again at the present time would not be entirely fair. Now, there is an urgent need—and this comes under the energy consensus—for us to say how the situation should develop after the year 2000.

SUEDDEUTSCHE ZEITUNG: Do you think that it is realistic for the federal authorities to transfer responsibility for subsidies to the laender in the long term?

Merkel: That will be case in the long term, if one takes long term to mean 5-10 years. There will be no reason why bituminous coal is supported in North Rhine-Westphalia, but lignite is not supported in Lausitz.

SUEDDEUTSCHE ZEITUNG: You are in favor of the continued use of nuclear energy. Can you talk about a timeframe for the phasing out of reactors and an option of some kind or another?

Merkel: "An option of some kind or another" is a Schroeder formulation that I cannot go along with. There has to be a clear option. I believe that the current generation of nuclear power stations has, of course, to be developed further. Fortunately, the demand for energy is such that the construction of new nuclear power stations is not an issue about which decisions have to be made at the present time. I just think that it is important that we should maintain that option—that is to say, that we continue with research and development, including research and development connected with the construction of a new reactor. One aspect is the national one: I do not know what the debate will look like in 10 years. I also do not find the idea of importing nuclear energy from

somewhere else in Europe to be all that attractive. Today, the real dangers lie in the former East Bloc countries. The question one day will be who will replace those power stations? We have the example of North Korea, where the United States will install two new power stations, and I do not see why we, with our good standard of technology, should allow ourselves to be deprived of export markets even though we build the safest reactors in the world.

SUEDDEUTSCHE ZEITUNG: The problem with that option is that there are those who really want to make use of it and others who are speculating on it not being used.

Merkel: That is correct. The point is that Schroeder's proposals tend toward seeing this as being a particularly difficult way of abandoning nuclear energy, whereas as I say that there will only be an option that is really viable if it is accompanied by research and development measures. Concentrating on one reactor type from the point of view of development is already pointless. One cannot determine the direction in which research and development will proceed today. The type of reactor that is being considered is a prototype for a really large power station. However, it might be the case that development will proceed in the direction of smaller reactors that provide more opportunities for using thermal energy.

SUEDDEUTSCHE ZEITUNG: However, if both sides adhere to their optimal positions, there can be no consensus. Neither side can expect its clientele to accept everything.

Merkel: I am serious about the conservation of energy and I also want to dispassionately check various forms of energy production, which include renewable forms of energy. Not using chances for development in that area while putting billions into bituminous coal or into issues connected with final storage on my account, and then to say it would be a shame to put 500 million into renewable energy creates an imbalance that I can understand. Those are also the conditions under which compromises might be possible with a clientele that does not view nuclear energy as rationally as I do.

Merkel: The question of the disposal of waste materials must be solved in any event, or do you share the view of the energy suppliers, who say that final storage is not such a pressing issue?

Merkel: That is another point: We could obtain our electricity somewhere else, have our fuel rods stored somewhere, create very stringent safety requirements, decide to abandon nuclear energy and be very good world citizens. I can only feel contempt for that kind of view. I think it is wrong to construct national nuclear power stations, but not to bother about temporary and final storage. We have no idea at all how situation in the world will develop. Today, I would not rely on final storage sites in the Urals and in the Gobi Desert. The perverse thing is that the checking of possible sites is being made difficult by the very people who adopted decisions in the past that have resulted in nuclear energy being used to the extent that it is.

SUEDDEUTSCHE ZEITUNG: Perhaps they have obtained new insights?

Merkel: That might be the case, but politics cannot work if one says: "We are no longer in power now, so it is up to the others to get themselves out of the mess." That is absurd behavior and Mr. Schroeder knows that and he is trying to achieve an energy consensus because he will not be able to get very far with that kind of attitude for much longer. Now, as for the storage questions, that is a much more pressing issue. The power companies and I are in agreement that there must be at least one other site for a storage facility in addition to Gorleben.

SUEDDEUTSCHE ZEITUNG: Does the final storage facility have to be located at Gorleben?

Merkel: That is something that merits some thinking, but a start has to be made somewhere. People cannot always say it cannot be located here and it cannot be located there. I mean, if we want to make things easier, then we have to spend three times as much money and begin in three different places in the FRG. Scientists have now established that salt domes are perhaps not that unsuitable for final storage.

SUEDDEUTSCHE ZEITUNG: The protection of the climate and the energy consensus are very complex issues. Do you feel that you are up to your new ministerial post? Or....

Merkel: I think I am capable of it intellectually. It is fun.

SUEDDEUTSCHE ZEITUNG: You have two new state secretaries and one who has been in office for less than a year. Would the experience that Clemens Stroetmann, whom you retired, has not been very useful.

Merkel: I made a decision on the issue and such decisions lie within my purview. I considered the decision carefully. I now want to carry on working with that decision.

Environment Industry Competitive in East
95P20432A Copenhagen BERLINGSKE TIDENDE
9 Jan 95 p 6 Sect III

[Article by Ole Bang Nielsen: "German Environment Industry Equipped for Thrust to East"]

[FBIS Translated Text] **Environment Industry:** Firms involved in environmental clean-up in Germany have 171,000 employees and are the world leader, according to a new report.

The German environmental industry is well-equipped to enter the large market in Eastern Europe, according to a report prepared by the Institute for Economic Research in Halle (IWH).

There are about 2500 firms in Germany with their main emphasis on environmental efforts. They employ 171,000 and have a annual turnover of about 220 billion kroner in 1993, the report says. Therefore, the German environment

industry is the world leader with a market share of 21 percent, followed by the United States with 17 percent and Japan with 13 percent.

The reason for the strong German position is the stiff environmental policy in Germany, which, for example, has stricter requirements for recycling of packaging and trash. The major part by far of the German environmental industry's money—about 81 percent—is earned at home.

The comprehensive environmental clean-up in the former East Germany has contributed to the strong turnover; in 1993 alone around 30 billion kroner was invested in sewage treatment facilities in eastern Germany.

According to the report, the German firms are also qualitatively best in Europe, because they use 3 percent of their profit for research and development of new products.

German exports of environmental technology go mostly to other EU countries, with 7 percent of total sales and to Japan and the United States.

Only 2 percent of sales are in East European countries, but the institute in Halle points out that the German environment industry is expected to make a strong showing in the East European market when the East European countries can afford to clean up after many decades of industrial pollution. Here the German firms will have the necessary expertise because of their experience in the former GDR, the report said.

'Berlin 95' UN Climate Summit Previewed

95EN0122A Frankfurt/Main FRANKFURTER RUNDSCHAU in German 3 Jan 95 p 6

[*"jw/epd"* initialed article: "From Rio Direct to Berlin: the First UN Climate Conference From 28 March to 7 April"]

[FBIS Translated Text] When the approximately 3,000 government representatives from 180 nations arrive in Berlin just prior to 28 March they will most assuredly be bringing the following document with them along with a welter of other material.

The ultimate aim of this agreement...is to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level at which a dangerous anthropogenous [i.e. emanating from human beings] disturbance of the climatic system is prevented. Such a level should be achieved within a time frame which is sufficient for the ecological systems to adjust to climatic changes in a natural way; for food production not to be threatened and for economic development to continue in a sustained manner.

These are the pivotal sentences of the world climate convention which was signed at the UN Earth Summit on the environment and development in Rio de Janeiro two and one-half years ago and has since been ratified by a good one-half of the signatory nations. "Berlin 95" from 28 March to 7 April is designed at length to concretize the struggle against the dangers of anthropogenous greenhouse gases which thus far has often been waged on paper alone. The conference which was brought to Germany by Klaus

Toepfer, the former minister for environmental affairs and current head of the UN Commission for Sustained Development (CSD), is the biggest of its kind to be held in the FRG.

Although the principal articles of the convention which are binding under international law do call for stringent measures to reduce greenhouse gases they do not contain a binding timetable. Experts say that the abovementioned "stabilization of greenhouse gases" in the atmosphere requires a rapid 60-percent reduction of carbon dioxide emissions. As a consequence, the Berlin meeting is scheduled to examine the "adequacy of the obligations cited in the convention." A supplementary protocol might require the industrial nations to carry out rapid reductions as well as to undertake concrete steps, e.g. five-liter automobiles and improved insulation standards for buildings. In addition, the 3,000 climate experts are to decide on funding mechanisms for climate protection programs in the developing countries, on possible collaboration (joint implementation) between north and south on such programs and on the standards for determining "rising and falling levels" of greenhouse gases. The annual climate reports which the signatories are required to submit must also be reviewed.

The land of Berlin is getting ready for the summit. Volker Hassemer (CDU) [Christian Democratic Union], Berlin's senator for environmental affairs, said recently that the city's most important contribution to the UN conference will be an energy program calling for a 25-percent reduction in carbon dioxide emissions between 1990 and 2010. This program includes a number of measures in the areas of transportation, industry, energy production and construction. With the assistance of "Berlin Partner," a marketing firm, the city government is also mounting a wide-ranging program in support of the conference. Wilhelm von Boddien, the managing director, said that the program includes exhibits, discussions and public events such as a planned bicycle parade and a high-wire act entitled "climate balance" which aims to rouse the interest of the local population for the conference. For another thing the fact that the eyes of the world community will be focused on Berlin during the summit should be exploited to portray the city as a "metropolis dedicated to economic activity, technology, research and cultural life." The roughly 6-million-mark cost of the programs in support of the conference will be covered in large part by lotto receipts.

Organizations dedicated to the protection of the environment and development aid which have joined together in a "climate forum" have also scheduled a great many events in support of Berlin 95. And, of course, there will be a huge number of print and electronic media journalists covering the summit to be held at the Berlin conference center.

Information About the Conference

Ministry of the Environment, Protection of Nature and Reactor Safety, Public Affairs Department, 53106 Bonn. Tel. 0228-305-3050. (Fact sheet: "Umweltschutz rund ums Klima" [Environmental Protection Around the Climate];

Pamphlet: "Wir und unsere Umwelt/Das Klima Puzzle" [We and Our Environment/The Climate Puzzle]; free of charge).

Senat for Stadtentwicklung and Umweltschutz Berlin [Senate for Urban Development and Environmental Protection], Lindenstrasse 20, 10958 Berlin. (Pamphlet series "Klima 95," free of charge, includes coupons for additional material).

Klimaforum 95, Behrensstrasse 23, 10117 Berlin. Tel. 030-2022030. (Various information materials, among them "Bulletin" on Berlin conference; free of charge, but contributions are welcome).

Climate Summit Host Berlin to Cut CO₂ by 25 Percent

95EN0122B Frankfurt/Main FRANKFURTER RUNDSCHAU in German 10 Jan 95 p 6

[Article by Manfred Ronzheimer: "Less Greenhouse Gas Over Berlin—and Over the Whole World"]

[FBIS Translated Text] "Peoples of the world, turn your eyes on this city." These imploring words spoken by Ernst Reuter, the lord mayor of Berlin, in the blockade year of 1948 will be listened to in a new way in just a few weeks. From 28 March to 7 April some 3,000 representatives of 166 countries around the world are expected to meet at the world climate conference, the biggest UN conference ever held on German soil, to discuss the next steps in the reduction of greenhouse gases in the atmosphere. Additional parallel meetings such as a summit meeting of mayors of the largest cities in the world and the first ever international climate protection fair will turn Berlin into the world capital for environmental issues for the space of two weeks. In order not to disgrace itself ecologically before the peoples of the world, Berlin has embarked on a crash program to do its environmental policy homework. Following three years of tough preparatory work, the senate passed the "Berlin Energy Plan" last December which calls for a 25-percent reduction of carbon dioxide emissions in the capital by the year 2010.

This does not make Berlin an out-and-out climatic pioneer, since other large cities such as Bremen, Hanover and Kassel agreed on similar carbon dioxide strategies years ago. Still, it is the amounts involved in Berlin's case that make the difference, i.e. the approximately 30.5 million tons of CO₂ emissions in 1990 are to be reduced by 4.2 million tons by 2010. Assuming a population increase of 300,000 to 400,000, the city government estimates that the measures adopted will result in a 25-percent per capita reduction in CO₂ emissions. "Nothing like this has ever happened before in the energy sector of the city," said Volker Hassemer (CDU) [Christian Democratic Union], Berlin's senator for environmental affairs.

To be sure, there have also been critical voices claiming that the assumptions of the climate program are based on an illusion. Rainer Hagendorf of "Netzwerk Klimagipfel" [Climate Summit Network], a coalition of Berlin environmental groups, maintains that the per capita mathematics

are flawed, i.e. that the carbon dioxide reduction merely amounts to 14 percent in terms of absolute figures. "It's a fake," Hagendorf says.

A minimum of five billion German marks (DM) will have to be spent on the construction of housing, by industry and on public facilities in order to cut down on greenhouse gases over Berlin. Most of the reduction will come from energy savings in housing construction and private homes. The Berlin senate's energy department estimates that this in itself will result in a reduction of 2.9 million tons carbon dioxide emissions. Public facilities and transportation will save 900,000 and just 308,000 tons respectively, the reason for the latter being that traffic volume in the capital is expected to rise dramatically. Decreases in the economic field will be even smaller for although the DM3 billion to be spent on energy-saving measures by industry, on plans for more energy-efficient office buildings and by the new Berlin energy agency will help bring down carbon dioxide emissions by 1.2 million tons the net effect on the climate will be plus or minus zero, since the expectation is that the economy will boom and energy use will rise.

The first stage of the climate program is a plan of action entitled "Berlin Saves Energy" on which the senate proposes to spend DM432 million in the dual budget for 1995/96. "Priority will be given to programs related to public facilities because these can result both in energy savings and in savings in the land budget," Hassemer says. Over the past three years so-called energy teams have demonstrated in eastern Berlin what savings can be made by installing new hot water boilers or insulated windows in schools and hospitals. These experts inspected the buildings in question and found that energy consumption could be cut by 20 to 30 percent on average. As a rule, the necessary investments were paid for by savings in heating and electric bills.

According to Klaus Mueschen, the head of Berlin's energy department, the capital has by now attained a leading position countrywide in the use of decentralized block thermal power stations. "Berlin really looks good on that score," he says. "We now have just under 30 of them in operation." By the year 2010 these natural gas-powered plants will produce 200 megawatts of electricity and 330 megawatts of heat.

The energy plan's preliminary phase featured a series of hearings and meetings which were "unique countrywide," Mueschen says, in terms of citizen participation in that the chambers of industry and commerce as well as the home and property owners association and the solar and wind energy activists all had an opportunity to state their case. The political implementation of the program, however, proved unexpectedly difficult in view of Berlin's spectacular budgetary woes in 1994. Hassemer encountered the most determined opposition to his climate protection policies from fellow senate members responsible for housing and transportation.

The truth is that the latter two areas will show whether the climate goals are realistic or whether they will only remain

ecological utopias. The plan is to build some 400,000 new apartments in Berlin by the year 2010, a 20-percent increase over the present number. Skeptics say it is by no means certain that the construction industry will be ready to comply to environment-friendly building codes.

Critics of the plan, such as Hartwig Berger of Alliance 90/Greens, also consider the projected reduction in CO₂ emissions a "major weak spot." To expect a 7-percent reduction in carbon dioxide emissions in the face of a 50-percent rise in city traffic is a "real Potemkin village," he says, adding that it is "the height of dishonesty" to leave air traffic out of the equation which accounts for just under 4 percent of CO₂ emissions today and is expected to increase twofold by 2010. "Anyone proposes to improve air quality today without cutting down on motorized traffic on land and in the air," Berger says, "will come a cropper before he even starts."

Environmental NGO's To Hold Alternative Climate Summit

*Frankfurt/Main FRANKFURTER RUNDSCHAU
in German 17 Jan 95 p 6*

[Article by Stephan Hebel: "Mass Rally From Below for Climate: Grass-Roots Groups Issuing Invitation to Their Own Summit During the UN Conference in Berlin"]

[Text] Why not think big? "Just imagine you were the chancellor," Hermann-Josef Tenhagen told the citizens of Berlin recently. "Four million people were out of work and then somebody offered you 500,000 jobs at no cost to the economy. And, in addition, you could even do something on behalf of the climate." Wouldn't everyone jump at the chance? "The fact is that such an offer really exists," the readers were informed. After all, the German Institute for Economic Research did find that ecological tax reform could create one-half million jobs. The way to do it: raise the price of energy consumption and at the same time lower labor costs. The money the government collects in the process it should return to the people by subsidizing social insurance for those who work and thereby lower their contributions.

Tenhagen and his activists of "Climate Forum 95" who are coordinating the efforts of the environmental groups on the occasion of the world climate summit to be held in Berlin in late March really do think big. They do not eschew sensational headlines ("500,000 Jobs to Give Away"), nor do they avoid contacts which many an ecological fundamentalist would call unsavory, e.g. Tenhagen's call to phantasize about stepping into the chancellor's shoes was contained in a brochure jointly published by the Berlin senate and the federal government of which 250,000 copies were printed.

Which clearly shows that they are prepared to lay it on pretty thick but, says press spokesman Tenhagen who took a 6-month leave of absence as an editor of Berlin's TAG-ESZETUNG, "fundamentalism is not our thing." The strategy is to put pressure on the summit participants and, above all, on the German government by stating concrete

and realistic demands without fear of confrontation. The main focus in the list of demands supported by more than 100 environmental and development groups is to call on the industrial nations which are the greatest producers of the environmentally harmful greenhouse gas CO₂ by far to reduce emissions by at least 20 percent by the year 2005 as against the levels of 1990.

"We definitely need even more of a reduction," Tenhagen says. "The question is what do we need for the conference?" The ecological groups are deliberately staying within the framework in which the conference itself will operate. Their demand corresponds in every detail to the resolution submitted by the 36 members of the Alliance of Small Island States (AOSIS). This is definitely radical enough to point up the German government's "credibility crisis," as Tenhagen puts it. The fact is that Germany has not submitted a reduction goal to the Berlin conference at all, nor did the Kohl government institute an energy tax last year. Pragmatic or realistic, the Climate Forum's criticism is clear: the German government has demonstrated "on pivotal occasions that it is not living up to its claim of being a world leader in climatic policies."

To get this to change in Berlin, the environmental activists are trying to make the politicians move between now and the start of the conference. Greenpeace and Greens, bicyclists and high school students, wind energy fans and Third World freaks are planning a large number of events in the weeks ahead. The Berlin-Brandenburg evangelical academy is holding a weekend seminar on "Protection of the Climate—An Acid Test for Ecumenical Solidarity;" Alliance 90/Greens has scheduled a debate on climatic issues affecting food production and consumption entitled "Are We Eating Up the Atmosphere?" Wind power and solar energy are extensively discussed. Young people are busy constructing a living solar clock, with a real tree acting the part of the hour hand.

On 27 March, the eve of the summit, NGO's [Nongovernmental Organizations] from around the world will meet for their own summit entitled "Goals for Berlin." And there will also be demonstrations. What the environmental activists would like most is to stage a mass rally on 2 April, turning the date into a Sunday without automobiles. At the very least they would like to cause a "slowdown" on Berlin's Avus urban freeway. All these activities are not being organized by the Germany-wide Climatic Forum but by individual groups and/or the regional organization "Climate Summit Network." According to Tenhagen, the Forum, with a six-month budget of some 900,000 German marks (DM), has assumed responsibility for coordinating deadlines, collecting information, organizing public relations and acting as a "political catalyst" for the discussions among the various groups.

Some of the money comes from the senate-owned "Consulting and Service Society for the Environment" and some from the Federal Foundation for the Environment while staff salaries are paid with job program funds. The events are paid for by the individual groups which draw on a subsidy of more than DM1 million also provided in the

final analysis by the government. And if current negotiations with the German railroad system are successful, the alternative summiteers will even have an ecologically correct sponsor.

One supporter has already been firmed up. The building in which both the Climate Forum and the Network have their offices is owned by a hotel chain. The firm had originally wanted to tear the building down but then rented it out to the environmentalists. The latter first spent two months trying to fix the defective heating system, even resorting to "climate-harmful electric fan heaters" the power for which is produced by power plants which emit large amounts of CO₂. For the home stretch leading up to the climate conference, however, all the logistics are in place and the heating system is in good working order.

The office space sharing arrangement among Climate Forum and Network also works smoothly. This is not really a foregone conclusion, since the local groups deplore the fact that the Forum does not lay greater stress on the connection between climatic violations and the injustices of the world economy. Which is why they did not sign the Germany-wide list of demands; the more so since they are pushing for more ambitious cuts, i.e. 50 percent less greenhouse gases by the year 2010. But as befits good coalition partners, the differences remain on the back burner at least until the conference. In the end, Network spokesman Tillmann Roemer says, he can live with the reduction goal announced by the small island states. Thinking back to the days of the Wall, Roemer muses that "after all, Berlin was an island state once upon a time, too."

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EFFICIENCY NEWSLETTER in English Dec 94

[Article by Belgian country team: "Environmentally-Friendly Production of Energy by Wood Waste Combustion"]

[FBIS Transcribed Text] Wood waste combustion has been improved over the last years in response to stringent legislative restraints concerning flue gas emission and disposal of solid waste. Thermal recycling of dry wood has some advantages when compared with disposal. First of all there is the CO₂-neutrality. The use of this type of solid waste as a fuel never produces a larger quantity of CO₂ than the amount absorbed by the tree during its lifetime. So the replacement of fossil fuels by wood results in an overall reduction of CO₂ emission.

Also the natural anaerobic break down of wood by means of microbial activity after disposal produces methane which is a thirty times stronger contributor to the greenhouse effect than CO₂. Finally, by disposal of wood waste a substantial quantity of useful thermal energy is lost and

probably a larger quantity of energy is spent during transportation which also contributes to the increase of harmful exhaust gases.

Combustion Technique

The Belgian company Vyncke is one of the world lead manufacturers of combustion installations to convert biomass-waste (wood, rice, coconut, palmnut wastes, etc.) into thermal energy (eg. warm water, steam, heating oil) and electrical energy. To respect the increasing demands of European environmental legislation a modular combustion system (Combi-Turbix-Combustor CTC) has been developed.

Optimising combustion is principally achieved by a controlled supply of the solid dry fuel (wood offcuts, chips of wood, shavings, sawdust, veneerstrips, laminar board, etc.) and combustion air in the refractory combustion chamber at the appropriate combustion temperature.

The combustion chamber is placed directly under and partially within the boiler. It has water cooled furnace walls with an underfeed stoker supplying the fuel through a U-shaped trough in the floor. Primary combustion air is supplied through cast iron floor grates. The walls of the combustion chamber are completely lined with refractory concrete and are provided with secondary combustion air inlets. A conical narrowing at the top of the combustion chamber has openings for tertiary air supply and leads directly into the furnace section of the boiler. The wood waste is broken down in a chipper to obtain a homogeneously sized fuel (20x12x3 mm) and is screw fed into the combustor from a silo.

The fuel is slowly heated while being smoothly pushed upwards to the surface of the fuel bed. Wood near the surface begins to gasify and the combustible gases released mix with air and ignite just below the fuel bed. Primary combustion air is blown up through the bed, secondary air is injected just above the bed's surface and tertiary air ensures complete combustion at the end of the chamber. An intense blending of the fuel, volatile particles and combustion air is achieved.

This optimises residence time, temperature and turbulence of the combustion gases, whilst minimising emissions of dust, carbon monoxide (CO) and total carbon.

When the wood fuel has a content of more than 50 percent fine dust (less than 0.1 mm) an adjustable mesh strainer is used to separate fines from the bigger particles. The latter are burned in the underfeed stoker and the fines are injected tangentially into the combustion chamber which guarantees their almost immediate combustion.

The underfeed stoker allows automatic reignition without an auxiliary burner even after a relatively long standstill. The wood bed burns downwards very slowly and insulates itself with a thin layer of ash, which keeps the fuel mass glowing for automatic reignition. The underfeed stoker has a heat resistant top, but is constantly covered with a thick layer of fuel so that direct contact with the flames is avoided.

Vertical Hot Water Boiler

The vertically oriented three-pass boiler consists of a cylindrical furnace and two bundles of fire tubes arranged concentrically around it. Flue gases pass up through the first fire tube bundle. They are then ducted up through the second tube bundle to exit via a flue gas collector at the top. As the fire tubes are placed vertically, deposition in the tubes is reduced to a minimum by the self cleaning effect of gravitation.

The spacious furnace section around the flame achieves complete burn out of the combustion gases without any contact with the cold wall and also allows heat transfer by radiation. The flue gases are therefore already cooled down before entering the fire tubes; this feature not only reduces the stress on the tube plate but also prevents molten ashes sticking to the tubes.

When flue gas recirculation is fitted a separate fan reinjects a part of the flue gases into the furnace together with the secondary combustion air. Consequently the furnace temperature is reduced and the NO_x emission is also reduced.

Automatic Control

The control plane contains all the necessary measuring and controlling equipment to assure smooth and safe operation of the installation. The control system is PLC driven. Combustion is controlled by a regulating (On-Off) thermostat measuring boiler water temperature. The flue gas fan, together with a modulating valve, assures a constant underpressure in the furnace, and that the fuel feeding system continues to operate as long as the preset water temperature is not exceeded. During the start and stop procedures, sequential control of the air supply ensures a smooth change from start to full load and vice-versa. During an emergency shutdown period the bypass valve over the flue gas filter is opened and gases in the furnace will evacuate by natural draught.

Controlling combustion air input maintains a constant underpressure in the furnace and optimises the combustion even with changing fuel quality. It is also possible to

control according to the energy demand, instead of the On-Off principle already described, by using present positions for the primary, secondary and tertiary combustion air regulating valves. Solid fuel feeding is regulated from a continuous O_2 measurement. This optimises combustion continuously between partial and full load and means that fluctuating fuel density or quality has only a minor influence on emissions.

Efficiency and Economics

The increase in overall combustion efficiency, up to 90 percent compared to 75 percent obtained in earlier wood waste combustion installations, is achieved by using a lower excess air ratio (equals 1.5 instead of 2) combined with a modulating control, a larger heat exchanger to further cool down the flue gases and an economizer.

In a case study for a timber drying company a comparison was performed between two possible heat sources: gas and wood waste. Up to now gas was used as a fuel to produce hot water to be dispersed over 22 drying chambers. An extension with six drying chambers was needed to increase the drying capacity from 50×103 sq meters up to 65×103 sq meters timber/year. The total head demand is 300MJ/h. As can be concluded from Table 1, the surplus of investments is 10.5 million BEF and the savings by using wood waste are 3.13 million BEF/year. This results in a simple payback period of 3.4 years.

Emission

Due to the ability of the combustor to control combustion air, solid fuel feed and flue gas recirculation, the emission of CO , NO_x , CO_2 and dust are minimised.

Under ideal conditions, using a multicyclone filter together with optimised combustion and uniformly sized wood fuel with an ash content of less than 1 percent, a dust emission of less than 150 mg/m^3 can be obtained. To meet the most severe allowable limits of dust emission (less than 50 mg/m^3) an electrofilter must be installed instead of the standard multicyclone filter.

Conclusion

To restrain the growing amount of solid waste, environmental regulations will become more and more rigorous. On the other hand energy prices remain unstable. Combustion of wood waste in a controlled and environmentally friendly manner will bend both problems into a useful

solution. By using the modular Vyncke-combustor wood waste, with its high energy content, can be used as a clean fuel.

Space heating, process heating and electricity can be produced in an automated, low maintenance and flexible way from many different kinds of biomass such as paper, wood, agricultural wastes, etc.

Table 1: Comparison Between the Combustion of Wood Waste and Gas

Wood Fuel		Gas Fuel	
Available wood waste	760,000 kg/yr	Gas consumption	500,000 Nm ³ /yr
Cost of disposal	1 mill BEF/yr	Cost	2.2 mill BEF/yr
Investments*	11 mil BEF	Investment	500,000 BEF
Maintenance	120,000 BEF/yr	Maintenance	50,000 BEF/yr

*(chipper, silo of 200 m³, combustion installation CTC w/electrofilter, chimney, adaptation of hot water pipings)

Table 2: Comparison of the multicyclone and electrofilter Emission (11 vol percent O₂)

Heating capacity (MW)	Filtering type	Fuel feeding (kg h ⁻¹)	Dust(mg m ⁻³) (max 150)	CO(mg m ⁻³) (max 250)	NO _x (mg m ⁻³) (max 300)	SO ₂ (mg m ⁻³) (max 400)	Organic material (max 400)
3.48	multicyclone	+-950	-	151	396	7	-
2.03	electrofilter	+-520	16	150	133	-	4
2.03	multicyclone	+-520	206	128	-	-	-

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